The Builder.

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Municipal Buildings, South Shields.....Mr. Ernest E. Fetch, A.R.I.B.A., Architect.
Competition Designs for Lambeth Municipal Buildings:—

1. Plans, Sections, and Elevations of First Premiated Design.....Mr. S. Warwick, A.R.I.B.A., and Mr. H. A. Hall, A.R.I.B.A., Joint Architects.
2. Perspective View, First Premiated Design.....Ditto Ditto.
3. Perspective View, Second Premiated Design.....Mr. H. P. Burke Downing, F.R.I.B.A., Architect.

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The So-called Temple of Minerva Medica.

THE so-called Temple of Minerva Medica is the first building of Imperial Rome that strikes the eye of the modern traveller when he enters within the circuit of her walls by rail—though this first glance from the train is all the attention that the majority bestow upon it. Thirty or forty years ago it stood among vineyards and gardens, while now, alas! its surroundings can hardly be described as picturesque or even attractive—railway lines on the one hand and mean streets on the other.

It deserves, however, more notice than it generally receives, for it is a building of considerable interest from both the archæological and the architectural standpoint. The archæologists of to-day are unanimous in rejecting the traditional appellation (which rests upon no evidence at all) and tend to find in it a nymphæum of the Horti Liciniani, a favourite resort of the Emperor Gallienus (himself a Licinius *) (*cf.* for example, Lanciani, "Ruins and Excavations," 402), though the most recent writer of all, Prof. Hülsen, in his (immediately forthcoming) completion of Jordan's "Römische Topographie," considers the evidence insufficient to justify the identification (p. 358).

In any case, the building appears to belong to the IIIrd century A.D. To date it more accurately from purely internal evidence would be difficult without direct information from brick stamps, and that is not at hand; while inferences from the comparative thickness of the bricks and of the courses of mortar which form the facing of its concrete walls are apt to be fallacious if pressed too closely, though they serve well as general guides. Still, that it is pre-Constantinian seems pretty certain. It has been added to, however, in later times; two huge buttresses on the south would seem still to belong to the latter part of the IIIrd century,* while to the Constantinian period (to which the spread of the use of *opus mixtum* is generally attributed—and probably with correctness, though it appears a good deal earlier in conjunction with *opus reticulatum*—even in Pompeii) may be probably attributed further considerable additions,† consisting of a large exedra, or curved hall, on each side, which was roofed with a semi-dome, and a vestibule on the north, connected with the exedræ by other structures, the nature of which is not altogether clear. Being of subordinate importance, they have never, indeed, been carefully studied*; but the original building—the central hall itself, a decagonal structure with a dome—has recently been subjected to a very careful examination by Signor Gustavo Giovannoni, in the "Annali della Società degli Ingegneri e degli Architetti Italiani," 1904 (xix.), 165-201 (with pl. iii., iv.). He sees in it rather a hall belonging to a great thermal edifice than a nymphæum; and it may be added that the later vestibule appears to have been heated by hypocausts.

The important part of Signor Giovannoni's work is, however, that in which he deals with the construction of the domed hall itself and of the place which it occupies in the development of architecture.

The ground plan consists of a slightly irregular decagon, at each of the angles of which stands a pillar; these are connected by arches, and on every side except the entrance (which faces almost due north) there is an apsidal niche, that opposite the entrance being a trifle wider (6·90 as against 6·25 metres). The four apses which adjoin the transverse axis of the building (two on each side) were originally open, having four columns at the back instead of a brick wall with a rectangular niche in it, like the rest; but when the large exedræ were added they were partially filled up, doorways being left in them, the skewed arches over which are interesting and well arranged so as to harmonise the original edifice with the later additions.

* Lanciani (*loc. cit.*) considers that the Licinii possessed property hereabouts from the time of the Republic onwards; while Giovannoni (*op. cit. infra*, 168) thinks that the gardens passed into the imperial domain during the reign of Gallienus' father Valerian—on what grounds is not apparent.

* A trial measurement gave the average thickness of the bricks and of the courses of mortar in the original construction as 35 and 27 mm. respectively, while in the adjacent buttress the figures are 29 and 27 mm.

† The drawing No. 15 of the album attributed to Andreas Coner ("Papers of the British School at Rome," ii.), reproduced in *Builder*, Feb. 4, 1905, p. 110, does not differentiate the various periods of construction, and has various minor inaccuracies.

* Signor Giovannoni does not show the whole extent of them in his plan, nor is his representation of them quite exact.

This lower story is 12·06 metres (39½ ft.) in height; and upon it rests another, which represents the drum of the dome and consists simply of another decagon with windows between the pillars. The later additions, to which we have already alluded, have almost entirely hidden the exterior of the pillars of the lower story, but have not produced modifications in the upper. Above the windows is a small cornice 17·55 metres (57½ ft.) above the floor level of the interior, and immediately above it come the pendentives, which are here spherical triangles upon a different plane from that of the dome itself (Rivoira, "Origini dell' Architettura Lombarda," i., 31, 32); they have, however, practically no structural function, as they were almost entirely constructed of plaster, the actual connexion of the walls with the inscribed circle with which the dome begins being extremely irregular. The dome itself is, internally, a slightly flattened semi-circle with a diameter of 23·9 metres (78½ ft.), the exterior of it being gradually stepped off, as in the Pantheon. Its construction is most remarkable, consisting of a framework like that of an umbrella, with ten ribs, which, as Isabelle observed before the fall of the dome in 1828 ("Édifices Circulaires," p. 60), were keyed into a ring at the summit. These ribs * are composed of arches of bricks measuring about 2 Roman ft. by 1; in the lower third of the dome there are five of these arches in each rib, but above this point (which marks a change in the structure—it is here that the steps on the outside commence) there are only three, the intervals between them being filled with lighter materials. The separate arches are connected by intermediate courses of larger tiles (Signor Giovannoni's drawing on p. 179 indicates this arrangement clearly). The spaces between these ribs are filled with small pieces of tufa laid in courses, with bonding courses of tiles at intervals, in the lower part of the dome, while in the upper the arrangement is less regular and the materials are lighter. Traces of modifications in design during the period of construction may be noticed; thus, in one of these spaces there is the start of an intermediate rib, the construction of which, however, did not proceed far, the builders having, no doubt, observed that it would have been absurd to impose a part of the strain on the key of the arches between the pillars. In three other spaces two intermediate ribs, with an arch resting upon them, may be seen; this reveals, apparently, an intention, afterwards abandoned, to leave some small windows in the dome itself. None of these attempts reach beyond the point which has been noticed as indicating a change in the structure, about one-third from the bottom of the dome.

The object of the architect who adopted this remarkable method of construction was evidently to reduce the mass of material employed in the dome itself, and so simplify the process of construction. The ribs carry the weight to the angles of the decagon, where there are strong pillars to support it; while, by making the ribs first of all, a considerable economy of time and labour must have been effected, inasmuch as far less scaffolding than usual would have been necessary. The result, however, was not altogether satisfactory; two enormous buttresses were soon added at the south end, opposite the entrance, while the other eight pillars were all, to some extent, strengthened by the constructions which are generally attributed to the Constantinian period (though these were not, of course, primarily intended to produce this effect), and which, as we have seen, are no part of the original plan—a fact not recognised in Mr. E. F. Reynolds's paper recently read before the Architectural Association, and reported in the *Builder*, February 4, 1905, p. 117. And even with these additions the dome was not strong enough to last up till the present day; the earliest views of the building which we possess show that the western pillar at the south end, in spite of the huge buttress by which it was strengthened, had already collapsed by the end of the XVth century, and with it the rib which it supported with the sections of the dome adjacent to it (*cf.* Alò Giovannoli, "Roma Antica" (1616), i., 74—a rare and important collection of views of ancient Rome). In the XVIIIth century we see that the process of disintegration had gone further, the intermediate filling having become detached from the ribs, and the centre of the dome collapsed in 1828, carrying with it the scaffolding which had actually been erected with a view to attempting a restoration. The *coup de grace* was given by a stroke of lightning not very long afterwards.

The actual causes of the collapse were, according to Sig. Giovannoni, who enters into careful statical calculations, the lack of cohesion between the ribs and the intermediate filling, and the lack of consolidation of the whole, due probably to hasty construction. Had these dangers been guarded against, there was, according to him, no defect in the plan of the building which need have led to its ruin.

A reconstruction of the interior follows, with a few remarks on the remains of its decoration, which are scanty, but sufficient to enable some idea to be formed of the arrangement. It was, no doubt, faced entirely with marble except in the dome and semi-domes, where stucco would have been used. It was also decorated with statues, a considerable number of which have been discovered at different periods. A few general remarks on the evolution of the dome in Roman architecture conclude the paper. We see that, while Roman constructive architecture was steadily progressing, so that in this branch the Basilica of Maxentius marks the highest level perhaps ever reached, there had been, since the time of Trajan, such a decline in the invention of architectural forms, that its ornamental members can only be called miserably poor.

In the development of domical construction the so-called Temple of Minerva Medica occupies an important place.

The first domes that meet us in Roman architecture are not true domes, but (at any rate after the solidification of the concrete of which they are composed) are solid masses resting upon the lateral walls, and depending for their cohesion upon the strength of the mortar which binds their materials together. Such are the domes of the round temple at Tivoli and of some of the tombs of the Ist century B.C. But the articulation of the mass soon begins, especially when we come to construction on a large scale; and in the Pantheon (which we now know to belong to the IInd century A.D.) we find a complicated system of arches * in the lower part, at any rate, of the dome, much of the structural value of which, however, must have disappeared after the consolidation of the mass of concrete of the dome itself.

In the meanwhile the adoption of spherical pendentives had made it possible to raise circular domes upon square or polygonal structures, the first two examples of which appear on a small scale in two square tombs on the Via Nomentana; while in the Baths of Caracalla we get a circular dome over a large hall which is square outside, octagonal inside.†

The building which we have been examining comes next in order of development, and contains several new characteristics—(1) its plan, a decagon with projecting apsidal niches; (2) the reduction to a minimum of the size of the elemental parts of the structure; (3) the arrangement of the dome, already alluded to; (4) the attempt at windows in the dome itself; (5) the buttresses on the outside of the pillars.

In the tomb of the Empress Helena, mother of Constantine (now known as Tor Pignattara), we find a new method of lightening the vaulting of the dome adopted (which may also be seen in vaults in the Circus of Maxentius on the Via Appia), namely, the introduction of large earthenware jars, or amphoræ, the shape of which resembles that of a pine-cone (*pigna*, whence the name), which, being left hollow, considerably diminish the weight. Two generations later the mausoleum of the daughters of Constantine (now known as S. Constanza) marks a further progress; for here we have a central drum supported by columns with a vaulted passage all round it.

After the time of Constantine no further progress was made, no new forms invented, as we see in the Lateran baptistery and in the (now destroyed) mausolea near S. Peter's, which were known as S. Petronilla and S. Andrea.

During the Vth century, however, the development of new elements continued in Ravenna,‡ on the lines traced by the architects of those domical buildings in Rome of which we have already spoken. The dome resting on pendentives is further developed in the mausoleum of Galla Placidia, a building which precedes all others of the same kind in the Byzantine world and was the work of Ravenna architects. The Greeks drew from Ravenna the idea which they carried into execution on a larger scale in S. Sophia at Salonica and finally brought to completion in S. Sophia at Constantinople. They did not, however, create new conceptions, but merely developed those

* The thickness of each rib is only about 2 ft. (p. 179 *med.*).

* See Hülsen, "Römische Mitteilungen," 1893, 305-311, Armanini e Beltrami, "Il Pantheon."

† At Hadrian's Villa, in the vestibule of the so-called Piazza d'Oro, we have an octagonal dome with lunette windows.

‡ See Rivoira, "Origini dell' Architettura Lombarda," i., ch. 1, on the whole question.

which already existed—if only in embryo—in Roman architecture. For in the domes of these and other great churches of the Vth and VIth centuries we find many of the characteristics of the monument of which we have been speaking—the ribs of brick with intermediate filling of lighter material arranged in courses, external buttresses, windows in the dome, apses projecting outwards from the pillars, spherical pendentives, etc.

The similarities that we meet in the Lombard architecture of the XIth century are, on the other hand, in Signor Giovannoni's opinion, not the result of direct imitation; this, however, we find in the great domes of the Renaissance—Brunelleschi's dome of S. Maria del Fiore at Florence, and even more in the dome of S. Peter's at Rome.

In conclusion, one or two points of detail may be noted—thus, in the reference to Martin Heemskerk (p. 166, n. 1) a drawing (vol. ii., f. 49ᵛ) of the Berlin collection is cited among the engravings; and it might further be added that Michaelis ("Jahrbuch des Instituts," 1891, 162) considers that it shows, not the nymphæum itself, but an unknown building similar to it. A representation of earlier date than any of those cited is to be found in a rare engraving by the Master of the Bird, who signs with the initials I.B. (Bartsch, "Peintre-graveur," xiii., 246, No. 3).

Again, it is hardly the case that Bartoli *saw* the statue of Minerva with the serpent excavated; his exact words are "in the garden of Minerva was found the statue of the goddess." *

Further, not all the niches in the additions of the Constantinian period are semi-decagonal (p. 181). But these are very small points after all, and do not affect the general value of the article, upon which it may be said without reserve that Signor Giovannoni deserves cordial congratulation.

* "Nell' orto della Minerva vi fu trovata la statua dell' istessa deità."

NOTES.

Workmen's Compensation Bill.

THE Bill to amend the Workmen's Compensation Act has passed through Committee in the Lords with but trifling alteration. A promise was given that the drafting of Clause 4, sub-clause 3, which exempts an employer from liability to a sub-contractor's workmen when the accident occurs on other premises, should be considered at a later stage in the Bill. We have already pointed out that this sub-clause as drawn does not even attain the objects recommended by the Departmental Committee since it is not clear that the undertaker's own premises alone are intended. In Clause 7 it was agreed that "smithies" should specifically be stated to include "shoeing forges," and consideration was promised to the point whether the undertakers of a railway should not be defined as the persons having "the actual use and occupation thereof," instead of the "owners and lessees." In paragraph 7 of the second schedule an amendment was agreed to that if an arbitrator should become unfit or be unable to act, the County Court judge (in place of a judge of the High Court as at present required by the Bill) should have powers to appoint a new arbitrator. So many points require elucidation if this Bill is to become a practical working measure that it is to be regretted they were not discussed at this stage in the Bill. In our issue for April 8 we drew attention to one or two important questions, and it is to be hoped they may still receive consideration before the Bill becomes law.

Motor Cars.

IN the House of Commons last week the President of the Local Government Board was asked to furnish a return of the casualties caused by motor cars in Great Britain and Ireland, but he stated that he could only give the figures for the metropolitan district, since in that area alone did accidents generally come under the notice of the police. We have frequently urged that some machinery should be established for securing a return on this subject. With the increased care of the Legislature for the injury to the limbs or for loss of life of the individual in connexion with factories, railways, and other undertakings, it is somewhat anomalous that the dangers of the road are taken so little into account, yet a factory is a place of safety where small risks are run compared to those incurred on our roads now that they are turned into tracks for express traffic, where the signals employed on railways are also absent. The recklessness and want of consideration of motorists is again attracting the attention of the Press, and the number of convictions for offences under the Motor Act is increasing, yet dwellers in the country universally testify they have little effect, and it is the exception and not the rule to meet a considerate motorist. The Motor Act is thus inefficient because the conviction is generally that of the chauffeur, who is made the scapegoat, whilst the owner of the car escapes the publicity of conviction and merely pays the chauffeur's fine. An amendment of the law rendering the owner *primâ facie* liable to fine and imprisonment when his car has been driven contrary to the regulations (a liability only to be avoided by his proving he was not present at the time, and that his servant was acting outside the scope of his employment) would, in our opinion, have a most salutary effect in securing the safety of the public.

Telephony.

ALTHOUGH telephony is a subject of great practical importance, yet during the last ten years there have been very few discussions on it at the Institution of Electrical Engineers. The rapid development of electric traction and power-transmission schemes, and the consequent problems which have arisen, are apparently the subjects which interest the great bulk of the members. The paper, therefore, on "Telephone Traffic," by Mr. H. L. Webb, which was read to the Institution last week, is a timely one. He points out that the study of the traffic is the most important part of the work of the telephone engineer. At an important exchange there are hundreds of thousands of daily telephone connexions to be made, and each connexion consists of a number of operations made partly automatically and partly by hand. The object therefore is to arrange the positions of the apparatus and the manipulators so that the connexions can be made with the maximum speed and accuracy. He divided the history of telephone exchange working into two periods. During the first period extending over sixteen years the apparatus was mainly experimental. During the second period, covering the last eight years, the apparatus had been so perfected that it could be standardised. The working is now mainly automatic. The introduction of lamp signals was perhaps the greatest improvement, as they are extremely compact and have no working parts. They work automatically, as the signal disappears the moment the current is cut off. The introduction of this system of signalling has enabled the operator to deal with from three to four times as many calls per day as he could under the old bell system. One difficulty, however, has arisen owing to the great increase of telephone traffic which it was not easy to foresee—namely, that the fluctuations are more severe. The maximum "rush" of calls during the busy hour regulates the number of operators required, and so, in view of future developments, the study of this problem is of pressing importance. Mr. Webb pointed out the necessity of a training school for operators in connexion with every large telephone system. At such a school the apprentice learns more of her work in a month than she could in three months under the old system of letting her "listen-in" at a working position.

High Voltage Lamps.

WE have often pointed out the primary importance to the consumer of the electric light of the question of the efficiency of glow lamps. We congratulate the technical commission who were appointed last year to consider the future of the electric lighting in Paris on recognising this point, and on asking the Municipal Laboratory and the Central Laboratory at Paris to carry out independently extensive tests to settle this question. The results of these tests have just been published in the *Bulletin de la Société Internationale des Électriciens*, and they entirely confirm what we have said on several occasions during the last eight or nine years when the question of the change over from low to high pressure has arisen. The lamps experimented on were for 110 and 220 volt circuits. They were obtained privately on the open market from many makers, and the average results may be taken to represent the working efficiency of the lamps. The conclusions the Central Laboratory arrives at are that the 220 volt lamps are in every respect inferior to the 110 volt lamps. They are 75 per cent. dearer, and their efficiency when new is about 20 per cent. less. After burning 200 hours the average efficiency of the high voltage lamps is no less than 34 per cent. worse than that of the low voltage lamps. It is a pity that the tests were not carried on till all the lamps were burnt out, but the curves obtained show how the difference in the

efficiency of the lamps goes on increasing. The results obtained at the Municipal Laboratory agree with the above. They found that the candle-power marked on the lamp was only a very rough measure of its luminous intensity, and they recommend that lamps should be marked in terms of the mean spherical candle-power. It will be seen that consumers who agree to change over to a higher pressure of supply have a right to expect a substantial reduction in the price of the current supplied.

Industrial Alcohol.

NO VERY drastic changes with regard to the treatment or taxation of alcohol for industrial purposes are proposed in the Report of the Departmental Committee on Industrial Alcohol recently published. Of most interest to our readers is, perhaps, the recommendation that ordinary methylated spirit shall, in future, contain only 5 per cent. of wood naphtha, instead of 10 per cent. With regard to the use of alcohol in lacquers, varnishes, etc., the evidence before the Committee as to whether the denaturing of alcohol with wood naphtha is detrimental to the lacquer or varnish or not was conflicting. The Committee state that specimens of goods treated respectively with (1) pure spirit, (2) ordinary methylated spirit, and (3) wood naphtha, were submitted to them, and that the distinction between them was scarcely perceptible to the unprofessional eye. The Committee consider that the existing regulations with regard to alcohol do not cause any serious embarrassment to the lacquer and varnish trade, except perhaps to the export trade. In the home market the trade enjoys protection owing to the fact that imported lacquers and varnishes containing spirit are charged full spirit duty on the quantity of spirit contained in them. The Committee show that the common assertion that the obstacles placed in the way of obtaining cheap and pure alcohol have been the cause of the coal-tar colour industry migrating from this country to the Continent is untrue. Such of the Committee's proposals as require legislative sanction will probably be embodied in a Revenue Bill.

The Inventions of Henry Cort.

AS WROUGHT-IRON has almost been superseded by mild steel, it is almost inevitable that the names of Bessemer, Siemens, and Martin should be familiar to the architect and engineer of to-day, and almost equally inevitable that the splendid services of earlier pioneers should be forgotten by the "professional man in the street," if we may be excused the term. Henry Cort, of Gosport, introduced the processes of puddling and rolling as long ago as 1783, and it would be impossible to enumerate in an adequate manner the services rendered by him to the iron industry of Great Britain. It is not generally known that Cort expended upwards of 20,000*l.* in perfecting his inventions, and that he was finally left to starve by an ungrateful country. Nearly fifty years ago Sir William Fairbairn stated that Cort "was robbed of the fruit of his discoveries by the villainy of officials in a high department of the Government," and went on to show that the inventions to which we refer had even then increased the wealth of the country by 600 millions sterling, and found employment for 600,000 men. Various appeals to the public and the Government that the children of this public benefactor should be rescued from want met with no response, but a tardy recognition of his work has now been made by the placing of a memorial plate on the wall of the parish church of Lancaster, the town in which Cort was born. It is pleasing to note that this memorial is the joint work of British and American iron-masters.

Radiant Heat.

THE singularly mistaken view is sometimes expressed that a hot-water or steam radiator is of little or no value except for the purpose of warming air, brought into contact with the heated surface, by the process of convection. We have even heard a consulting engineer—who has been responsible for some extensive installations of heating plant in public institutions—state his belief that pipes and radiators give forth no radiant heat at all. While admitting the far greater radiating power of an open fire or a red-hot stove, we must point out that a very considerable proportion of the total heat given out by hot-water and steam pipes and kindred apparatus is actually emitted by radiation. Taking as a practical example the case of a horizontal 4-in. cast-iron pipe at the temperature of 200° Fahr. in air at 60° Fahr., the amount of radiant heat given off per square foot per hour is about 130 British thermal units, while about 120 units only are imparted to the air by convection. The precise results depend upon attendant circumstances, for the amount of heat emitted by radiation varies with the nature of the heated surface, and the amount of heat removed by convection depends upon the velocity of the moving air. When pipes or radiators are placed in a separate chamber and used for "indirect heating" practically no heat passes from the apparatus to the room to be warmed but that which is conveyed by the air. But when pipes or radiators are employed for "direct heating," more than half the total amount of heat evolved passes in straight lines through the air to and is absorbed by the walls of the room and by the persons, furniture, and other objects in the room. Thus the radiant heat emitted is of very great practical value, although its temperature may not be sufficient to scorch paper or to do away with the desirability of open fires in certain circumstances.

A Remarkable Building.

THE Leonardt Warehouse in Los Angeles, designed by Mr. L. J. Mensch, C.E., of Chicago, is interesting for several reasons. It includes the longest span concrete-steel roof girders hitherto constructed, the walls are built of concrete blocks—the newest form in which cement is applied to building construction; the sky-lights are of armoured glass, an excellent fire-resister which does not seem to meet with much more than theoretical approval in this country, and the roof girders carry two suspended galleries 16 ft. wide, and calculated for a floor load of 150 lb. per sq. ft. While the combination of novel methods in this building is useful as an object lesson to conservative natures, the most noteworthy feature is the great span of the roof girders. These members are straight on the under side, and the upper surface slopes up towards the centre, where the depth is 6 ft. 6 in., the width being 14 in., and the span 102 ft. The greatest span hitherto attempted in concrete-steel is less than 60 ft., and the girders here mentioned constitute a remarkable example of the adaptability of this material. Further, the whole building, with a floor area of 104 ft. by 150 ft., was completely built in less time than would have been taken by the preparation of the steel roof trusses originally contemplated. The concrete-steel girders cost a little more than the estimated price of steel trusses, but by the substitution of concrete blocks for brick sufficient saving was effected in the walls and footings to counterbalance the difference.

A Central House for Technical Societies.

IN the course of his presidential address to the members of the Iron and Steel Institute, Mr. R. A. Hadfield referred to a topic which has been the subject of discussion among engineers and others, namely, the desirability of providing a central meeting-house for various technical associations not possessing establishments of their own. For many years past the Institution of Civil Engineers have been hospitable enough to lend the theatre of their house to different scientific bodies, among which we may mention the Institution of Mechanical Engineers, the Institution of Electrical Engineers, the Surveyors' Institution, and the Iron and Steel Institute. Two of these associations now possess fine buildings, and a movement is on foot to provide another of them with a permanent home. The Iron and Steel Institute, however, appears likely to remain in a homeless condition, in company with many smaller but most useful societies. Mr. Hadfield's interest in the question is doubtless accentuated, and quite properly, by the impending removal of the well-known establishment in Great George-street, and it may be hoped that the desire of the Iron and Steel Institute for a general meeting-house will have the effect of arousing various kindred bodies to take active steps for the realisation of so commendable a scheme.

The Society of Arts.

THE Council of the Society of Arts, at a meeting on the 8th, passed a resolution to the effect that in consequence of the feeling which has been aroused among some of the Proprietors of the London Institution in regard to the proposed amalgamation with the Society of Arts, they have decided not to attempt to go further in the matter. We from the first thought the proposed scheme a mistake, nor do we think that it would have been to the advantage of the Society of Arts itself, which has a history and a province of its own, quite distinct from that of the London Institution.

The Roman Wall of London.

IN the course of excavations for laying the foundations of some premises at George-street, in the vicinity of Crutched Friars, it is found necessary to destroy a portion, about 50 ft. in length, of the Roman wall which stands in the way of the new works. It is a piece of the later and outer wall which encompassed London in the IVth century, the construction of which is attributed to Constantine. As thus far laid bare the wall is about 7 ft. high and 8½ ft. in thickness. It presents the usual features of construction, consisting of a course of clay and flint upon the gravel soil, above which are three courses, alternately, of burned red tiles and rough-dressed masonry, set in cement. From the site we indicate the wall extended in a direction almost due south to Postern-row at the extremity of Tower-hill, and to the Thames-side, traversing the area now occupied by the Tower of London, where it passes just beneath the east end of the crypt of the chapel in the White Tower.

Parish Church, Brington.

A FUND is opened for the restoration of the parish church of St. Mary, Brington, in Northamptonshire. The church, which is mainly of the Decorated and Perpendicular periods, was enlarged in the earlier years of the XVIth century by Sir John Spencer of Althorp, in the parish, who added the north chapel, chancel, and clearstory of the nave; Frederick, fourth Earl of Spencer, added a bay to the chapel. The church contains the tombs and monuments of many members of the Spencer family, which afford an interesting study of costume and heraldry. Amongst them are the canopied tomb, in the chancel, of Sir John Spencer (*obiit* 1522) and his wife Isabel, and one with recumbent effigies erected in memory of her husband William, Lord Spencer, who died in 1636, by his widow, the Lady Penelope. Two entries for the year 1638 in Nicholas Stone's MSS. account books relate to the latter monument: one entry is as follows:—"In 1638 I mad a tomb for the Lord Spencer and his lady : : : for the which I had very well payed me 600*l.*" Walpole says that Stone paid John Hargrave (14*l.*) and Richard White (15*l.*) for the two figures. The monument to John, Earl Spencer (1783) is by Nollekens, after a design by Cipriani. The monument of Margaret, wife of John, first Earl Spencer, has figures of Faith and Charity sculptured by Flaxman. In the floor of the chancel is the tombstone (1616) of Lawrence Washington, who removed to this parish from Sulgrave in the same county, and was the ancestor of George Washington. The bars and mullets in the coat-arms on the stone and at Sulgrave are, it is generally supposed, the origin of the national flag of the United States of America.

Mr. Albert Goodwin's Exhibition.

AT the Fine Art Society's Gallery is a collection of beautiful water-colour drawings by Mr. Albert Goodwin, which are entitled on the catalogue "Water-Colours of the Cathedrals of England," but would be more correctly described for the most part as "Landscapes with English Cathedrals Introduced." We see a drawing, for instance, of shipping in the dock at Gloucester (20), and between two masts we just discern a distant view of the cathedral; or we read "Winchester" (5), and we see a light-blue silhouette of the long low cathedral in the far distance. This last, however, is not a bad way of emphasising on the memory the peculiar long and low proportions of Winchester. However, this is a set of exceedingly beautiful water-colour drawings, with or without cathedrals as the principal objects. Among the finest are "Lincoln Cathedral from the North-West" (9), taken at the moment when the setting sun lights up the west front with the rich warm golden colour which the stone takes under that light—we are glad Mr. Goodwin has not missed that effect; "Wells—Parish Church" (21), where the church tower is one of the best bits of execution in the exhibition; "St. Paul's from Southwark Bridge" (31), with the proportions and outline of dome and western towers right for once (painters play sad havoc with them generally); "Durham Cathedral" (38), a drawing of exquisite delicacy; and "York Minster from the Walls" (42), where the battlements of the walls form a very bold foreground. There are a few strictly architectural drawings of interiors, but for the most part the interest of the drawings lies in their general effect as landscape compositions rather than as representations of architecture. Mr. Goodwin's method (of late years) of showing some of the architectural features in small (distant) views of architecture by thin pen-lines, in some cases certainly interferes a little with the aerial perspective of a distant building. The view of York Minster, by the way (No. 11), is wrongly described in the catalogue as "from the north"; it is a view from the south-east.

M. Lalique's Jewellery.

MESSRS. AGNEW have hardly done a kindness to M. Lalique, the eminent French artist in jewellery, by printing in the catalogue of their exhibition of his work the exaggerated and fulsome adulation of M. Gustave Kahn, who tells us, to crown the edifice, that M. Lalique's invention "can only be likened to the wealth of a great primitive art, teeming with songs that become legends, and which legends that in their turn become epics—voicing the great cry of inarticulate humanity." We read at the commencement of the preface of the artist's modesty, which would have induced him to dispense with any praise of his work in print; but a man need not be exceptionally modest to dislike having such bombast as this turned upon him, and we wonder that a firm like Messrs. Agnew's should print it. The true state of the case is that M. Lalique exhibits things (we do not know how many of them are made by his own hands) which show the most exquisite workmanship, but which are by no means in the purest artistic taste, consisting largely of the imitation of natural forms in precious materials. The result is a deficiency of the quality of "style." His "diadème" in case 3, for instance, is a beautiful piece of workmanship, but the lines are too angular—too much like intertwined sticks; and this effect is worse in other cases, as in the "diadème" in Case VI., which has really no design, in the true sense of the word, at all. The diadème in Case I. is better, is a very beautiful and delicate piece of work; but it is not what a Greek artist would have produced with the same materials; the trail of naturalism is over it. The colossal grasshopper in carved horn, in Case II., is a monstrous thing, and repels one. There is a beautifully designed pearl necklace in Case V., and another nearly as good in Case VI.; but a large number of the objects, the rings and other things, are in very doubtful taste; too odd, too much like efforts to be original. It is very interesting to see such an exhibition, but we hope it will not influence English taste in any way. Our best artists in jewellery (we do not refer of course to what is made for the jeweller's shops) produce work which is in a better and purer style than anything we see in this exhibition.

PAINTING AND SCULPTURE AT THE PARIS SALONS.

By H. HEATHCOTE STATHAM.

THE first thing the visitor sees in the large gallery after mounting the grand staircase at the Palais des Arts is an immense painting by M. Detaille, divided vertically into three sections by pilasters, but in fact all one subject—"La Chevauchée à la Gloire," a crowd of cavalry soldiers of all uniforms, galloping on clouds in a composition forming a half circle, descending from the left, passing across the centre, and ascending again on the right, while at the top the visionary figure of "La Gloire" dominates the whole. This is a commission from the Government for, of all places, the apse of the Panthéon, once the church of Ste. Genéviéve. I am neither particularly devoted to the Catholic church, nor do I think war an unmixed evil; yet to find what was once the sanctuary of a church for Christian worship decorated by a painting of a cavalry charge does strike one as a somewhat sad incongruity; nor can one avoid the reflection that the "chevauchée à la Gloire" has hardly done much good for France during the last half century. For the painting itself, it has all the mastery of movement of man and horse for which M. Detaille is famous, but it is hard and glittering in colour, and altogether hardly a satisfactory method of occupying such an immense wall space, independently of the other considerations above suggested.

Speaking generally, one may say that the Salon in 1905 is much where it has been for some years past; there are no new developments. There is a crowd of pictures which represent almost every possible view that can be taken of the objects of the art of painting—pictures decorative, illustrative, historical, social; landscape, *genre* and still life; many of them vulgar and commonplace, and some of the best men are not equal to their best; yet it is surprising to find how many really good works can be picked out from this crowd of canvases, when one gives oneself time to go through them with considerate eyes.

To look first at some of the names which are always prominent in one's memory, M. Gervais rather disappoints one with his "Dura Lex, sed Lex," an allegorical picture of the majesty and severity of Law, who is depicted as a female figure in a scarlet robe, flanked by figures of justice and mercy, and appealed to by a crowd who stretch out protesting hands against her stern decrees. It is a little far-fetched in sentiment and not remarkable for beauty. M. Henri Martin exhibits a decorative landscape for the house of M. Rostand the dramatist which is of singular beauty; figures play a more subordinate part on it than is usual with this artist; it is a hilly landscape cut by vertical trees in parallel lines, painted in this artist's usual *pointelliste* manner, which in itself removes the picture from naturalism into a decorative plane; and it is remarkable for its rich, full quality of colour. Two or three prehistoric figures with a goat pass across the scene, which is like

some old-world pastoral of pre-Virgilian Italy. In landscape M. Didier-Pouget exhibits another of his early morning scenes with heather foreground and a valley partly lost in misty light, as extraordinary as ever in its realistic power, though he is beginning rather to repeat the same composition too often; but he exhibits this year another large landscape of a different class of effect—"Paysage Limousin—le Soir," an evening scene with a mass of trees and a perhaps rather too heated sky behind: yet if we could have these two pictures hung in the Academy, what a sensation they would make, and where would some of the R.A. landscape-painters be? M. Harpignies exhibits one perfectly beautiful work, a sunset landscape near the banks of the river Ain, which may be said to represent the perfection of landscape painting as a translation of the poetry of nature into the language of art. This, one must admit, is a higher class of art than M. Didier-Pouget's larger and more immediately striking performances. I have often commented on the generally poor character of French sea-painting, but M. Tattegrain has his revenge on me this time in "Les Filets Volets," where the green wave in the foreground is painted with such force and reality that it looks as if one could take a header into it; it is not the poetry of sea, but it is a perfectly triumphant piece of representation in painting, and proves that M. Tattegrain, unlike (one would think) many French sea-painters, does look at the sea before painting it.

Among the other pictures, to take first those which are decorative, we have three large designs for tapestry to be carried out at the Gobelins manufactory; M. Gorguet's "Les Noces de Psyche," the largest but not the best, and M. Toudouze's two large uprights, Jeanne D'Arc at the Siege of Beaugency, and the Crowning of Nominoë King of Brittany. Both these are intended for the Parliament House at Rennes, and both are excellent examples of the flat style of treatment, with decorative borders and abundance of colour, which is exactly suited for reproduction in tapestry. A modern historical event is celebrated in M. Guillonnet's large bright picture, "La Jeunesse de France au Tombeau de Gambetta; Nice, 1901"; a commission from the Government for the decoration of the Chamber of Deputies. It represents the members of the "Union des Sociétés de Gymnastique" placing wreaths and crowns on Gambetta's tomb; the young men all clad in a kind of sailor costume of white flannel, with bare arms, and coloured scarves round their waists. The symmetrical arrangement of the whole, and the great amount of white in the picture, give it a very decorative effect. M. Albert Maignan exhibits a large picture of the "Fêtes d'Orange" in the ancient Roman theatre, for the decoration of the terminus of the Paris, Lyons, and Mediterranean railway: we see the ancient built-up proscenium on the left, and the circle of stages of the auditorium, occupied, in odd contrast, by groups of people in the most fashionable modern French dress. Decorative landscape comes in again in M. Marec's triptych for the Salle d'Attente of the public in the Palace of the Senate; a garden landscape of very fine quality, but not "decorative" except in name and destination. M. Moreau-Néret's "Musique," a ceiling for the dining-room of the Hôtel du Louvre, is one of those groups of floating figures which alone are suitable for a ceiling, but the colour is rather poor. Then we have M. Scherrer's picture intended for the Hôtel de Ville at Sens, a very hard but historically interesting picture representing "Le Premier Mariage Civil à Sens," a kind of subject specially dear to the anti-ecclesiastical sentiments of the modern as of the old Republicanism. Not all of these pictures are of equal interest; but what a contrast to the state of things in England, where we hardly hear of a Government or a Municipal Commission for a decorative painting, to find all these large paintings for the mural decoration of public places in a single exhibition.

Among figure pictures not decorative, it is curious to find the Government purchasing M. Fauconnier's "Après Les Vêpres," a landscape and figures with a more or less religious sentiment, showing the groups of villagers seated, after evening service, on the heights overlooking a little town bathed in golden evening light. It is not a very remarkable work in itself; but it would seem that Government purchases from the Salon are partly influenced by a desire to secure anything which puts on record the national manners and customs, just as it has purchased out of the New Salon M. Béraud's clever realistic picture of the mourners at a fashionable funeral—a phase of Parisian life. M. Debat-Ponson, who is given to painting "pictures for the times," exhibits, with evident reference to the great war in the East, "Humanité en Deuil," a woman clasping in her arms two unhappy children:—

"Pour cette mère en pleurs il n'est, dans ses enfants,
Ni vainqueurs ni vaincus . . . des frères seulement."

It is a fine and pathetic work, very concentrated in design and expression. Among the popular hits of the year is M. Béroud's clever but rather fantastical picture showing the interior of the new Rubens room at the Louvre, filled with flying figures copied out of Rubens's own pictures, coming to greet the ghost of the master who appears at the entry to the gallery. It is fortunately but a small picture; as a life-size it would have been too ponderous a joke, as a cabinet picture it may pass. M. Bouguereau's lovely nymph again lies full-length on the wet sand with a breaking wave behind her—almost a replica of a picture of his some years ago; that which is physically beautiful he can at all events draw and paint, as few other people can, provided one can dispense with all poetry and sentiment; his two peasant children "Dans les Bois" are also charming after their kind. Among historic and warlike pictures we have M. Charpentier's "Hannibal Crossing the Alps," which is not very convincing; M. Dupray's small painting of Napoléon and his staff "Après la Victoire" at Wagram, a good work of its class; M. Duval's "Les Derniers Chouans devant Sainte-Barbe-Faouët, Morbihan," a fight on the exterior steps of a church, of interest as a record of an incident in the determined and desperate stand of the Chouans against the Republic; and M. J. P. Laurens' tremendous affair "Le Desastre," a regiment of cavalry precipitated into an unexpected ravine in full charge, horses and men tumbled over each other in dire confusion. I suspect this is intended (though not so expressed) as another illustration of that legend of the entrapping of the French Cuirassiers in a hollow road at Waterloo, with which Victor Hugo consoled his patriotic feelings as to the loss of the battle; whereas in fact Waterloo was lost because Napoléon was ill and Grouchy did not know his business—both good excuses enough, but the French like to stick to the more sensational incident, and this I have no doubt is intended for it. One is almost surprised to find that this is not "purchased by the State."

Among pictures of some importance a very clever but rather bewildering one should be mentioned, M. Henry Vollet's "Sensualités," which has nothing *inconvenable* about it in spite of the title, but is an allegory of which the meaning is not very clear. There are a company of richly-dressed ladies in the foreground, and a little Cupid stealing round outside of them; what is obvious in the picture is exceedingly fine colour and an elevated style, which would lead one to look out for the painter's work in the picture. M. Ridel, one regrets to find, in his "Feuilles d'Automne," has somewhat lost that poetic and abstract way that he had of treating figures in the costume of ordinary life, and has dropped comparatively into the commonplace. Among the various and multiple nudes are many of course which are mere life studies, some of them not even good as such; but it is some relief to find that M. Lalire's great hashes of nudes, which used to comprise two or three dozen figures tumbled on to the canvas, are now reduced to groups of four of five only; let us hope we are getting to the end of them. But there are some really fine things; particularly interesting among them is M. Chabas's "Au Crépuscule," a young girl, a child, standing in a pond whose ripples form broad bands of dark and light breaking her reflection. This is a real work of art; a picture with a breadth and unity of treatment which has gained the suffrages even of the ultra-modern school of critics who condemn the Salon; for just as in London there is a clique of people who can see no good in anything at the Academy exhibitions, so in Paris there is a set who affect to scoff at everything in the Salon. M. Raphael Collin's "Evocation Païenne" shows a somewhat serpentine figure prone on the ground, raised out of the commonplace of nude studies by a singularly beautiful and expressive head. M. Mercié, the sculptor, exhibits a beautifully painted small scale figure under the title (according to the catalogue) "Après la Faute"; if this is really the title it adds to the work a very pathetic meaning, but I rather suspect that the titles of his two pictures have been accidentally transposed in the catalogue. At any rate, this is a remarkable picture to have been produced by one who was for many years known chiefly as one of the greatest of French sculptors. The State has purchased M. Robert-Fleury's "Le Lever de l'Ouvrière," because, I suppose, it represents a type of the people; it is a fine picture too. Then there is the almost inevitable "Leda," not nude, nor repugnant in any way (which cannot always be said); a painting by M. A. V. Thomas, which in harmony of colour and power of design is a thing quite above the ordinary level. So also is M. Zwiller's "Reverie," a nude figure reclining with her back to the spectator, a little heavy in the shadows, but a painting of no common order of its kind.

The pictures illustrating modern Parisian life are not without interest. M. Avy's "Goûter" for instance, a life-size group at a dejeuner under the trees, is quite amusingly like a page out of one of Georges Ohnet's novels. M. Gardier's "Croisière" is a cleverly painted scene on a yacht, in which the figures are distinctly English, not French, in type at all events—and the best type. Then we have the pictures with a moral; M. Legrand's "Après la Guerre," for instance, and M. Matignon's very disagreeable "Morphine"; and M. Layraud's amusing satire on the vanity of legal proceedings, "Fin de Procès," where the two suitors emerge from the tribunal, the successful one with only his shirt left, the other with nothing at all, amid a group of astonished spectators in ordinary dress. It is only on a small scale, and may be called a mere joke, but is is certainly a joke with a point to it. A more serious interest attaches to a small picture by M. Maignan, in the same room with his large "Fêtes d'Orange" before mentioned; it is entitled "Adagio Appassionata," and shows a corner in a gallery of the Paris Conservatoire concert room; through openings we have glimpses of the rows of ordinary listeners, but the foreground is occupied by two people, a man and a young woman, whose whole soul is wrapped in the music; you do not see the players, you only see the effect of the music on these two listeners. It is an unusual picture of modern life with a great deal of feeling in it, and very completely worked out.

I must pass over the portraits, of which there are many fine ones (nearly all perhaps open to the charge of that over-finish which the French put into their portraits, and which gives a certain impression of hardness), and find space for a word about the landscapes. I have memoranda in my note-book of twice as many landscapes worth note as of any other class of works; but can only mention a few; and landscapes, after all, are less susceptible of description than figure subjects. Two have been purchased by the Government; M. Foreau's "Le Bac de Soubise" (probably for topographical reasons) and M. Grosjean's "Les Premières Collines du Jura," a mountain landscape with a very grand sky. The fine works by M. Didier-Pouget and M. Harpignies have been already mentioned. A lady, Mdme. Adam, exhibits an exceedingly fine picture of "Venise, Jour d'Octobre," looking over the lagoon with the buildings in the distance and a very broad and effective treatment of the water. One of the finest landscapes in the exhibition is M. Cachoud's large work "Quand vient la Nuit," a real twilight landscape in a grand and broad style, and full of poetic feeling. M. Cabié's "La Chaumière—Effet du Matin," is a fine painting of a French farmstead with great "immemorial elms" forming pillars of foliage. M. Simonnet, usually the painter of glowing sunsets, this year exhibits a snow scene in a winter wood with a town seen in the distance; it is a picture practically all foreground, and masterly in its reality of effect and detail. M. Paul Vayson has a diptych, a morning landscape in one panel, an evening one in the other; an effective combination. M. Pape shows what an effective picture can be made out of an old stone-quarry at Issy-les Moulineaux. Among others are M. Hareux's effective painting of the quays at Grenoble in twilight, with the lights showing; M. Wallet's "Automne—après la Pluie"; and M. Stéfanicz's "Rêve Romantique," an imaginary landscape in the park of an imaginary château, with decaying sculpture among the trees. Also there is a capital sea effect by M. Petitjean, "Coup de Vent à l'Entrée du Port du

Dunkerque," which is as full of wind as it could be, and also shows very truthfully what painters do not always seem to notice, the dirty colour of waves during a storm in a shallow sea. There are many smaller landscapes that are worth looking at.

At the New Salon, we are confronted also in the first room with a large decorative picture, M. Roll's "Joies de la Vie (Art, Mouvement, Travail, Lumière)," bought by the municipality for the decoration of some public room, and (as far as it can be made out all) as absurd a composition as one could well see: a plain in which bits of Classic and Gothic architecture are scattered about in the middle distance (symbols of "art"); a kind of procession seems to wind up a sunken road in the middle; on the left three huntsmen in scarlet coats gallop about, on the right are various figures whose occupations are unintelligible. The thing has neither beauty nor sense, and one is sorry to see it from M. Roll, who has produced some very fine decorative pictures. In another room we find a section of a great decorative ceiling for the Théâtre Français by M. Besnard, "Apollo et les Vingt-quatre heures." This is part of what is evidently a circular composition; the sun, behind the head of Apollo, makes a burning centre; Apollo's horses rear in the way they do only on ceilings, and the Hours appear fluttering amid concentric circles of light of diminishing brightness towards the circumference. The painting is treated in the way proper to a ceiling; that is to say, it is kept vague and floating in effect, and it may look better in its intended situation than it does on a wall. In Gallery X. there is a small collection of more satisfactory decorative paintings. The "Panneau Decoratif" for the Lycée Fénelon is a bright landscape representing Spring, with a line of joyous figures coming up to the foreground—a very charming example of landscape used in a decorative manner. There is also here M. Friant's fine ceiling for the Prefecture of Meurthe-et-Moselle, representing "La Lorraine Protectrice des Arts et des Sciences." This is one of the ceilings treated in upward perspective—a violoncellist foreshortened on one side, an astronomer and a globe foreshortened on the other side, the rest of the composition being filled with figures floating in the air. The principle of treating figures in upward perspective is not a good one, but in its main design this is a fine work and is essentially a ceiling painting, not a wall-painting placed horizontally; very different in this respect from M. Gervex's "Étude pour le Plafond de la Mairie du XIX^{e} Arrondissement," in which two classically draped butchers are about to operate on an ox bound to the top of a stone wall, which wall will of course appear horizontally on the ceiling, giving the idea that it must fall on one's head.

The eccentricities of the New Salon are greater than ever, and include things, like the paintings by M. Willette and M. Zuloaga, which represent the lowest degradation of the art of painting, though these things find admirers among the class of critics who find everything in the Old Salon bad and everything in the New Salon admirable. Yet the New Salon contains what, as a piece of painting, and indeed in the matter of expression also, is certainly one of the finest French pictures of the year—M. Carolus-Duran's "Volupté." He at least can paint, and though this picture would not recommend itself to parents and guardians in England, it is the one work in the New Salon of which it may be said that is in itself worth a visit to the exhibition. But the proportion of good work is really very small, and some of the best men are not up to their usual mark; M. Binet's series of small landscapes, for instance, is by no means equal to what I have seen here in former years. Among a few noticeable pictures there is a good one with a moral to it, by a Chilian artist, M. Arcos, "L'Aumone et la Charité," a diptych, one side illustrating the perfunctory giving of alms in the street by a rich lady, the other the visit of pure sympathy on the part of a young girl to a sick woman; this latter is a beautiful piece of pure feeling portrayed in painting, and the whole is very well executed. M. Aublet's "Le Chambre Verte," a small picture in which a nude figure stands half lighted by a stained glass window, is an unusual and very original production. M. Dagnaux' "Le Calvaire" is a fine little picture of a cross on a sea-coast cliff with a woman and infant seated by it; a picture with poetry in it. M. Flourie's "Avant le Bain" is a successful treatment of a nude figure in open air and lighted by flecks of sunlight through the trees. M. Lagarde paints a scene in a battered city street in winter, "Soir de Guerre," with dead soldiers and horses lying about, which has been bought by the State, but whether to encourage or to repress the warlike ardour of good citizens is not obvious. M. La Touche, amid some not very interesting works, impresses one with "La Bourrasque," the making up of a quarrel between husband and wife, which is touched with real pathos. M. Lavery's "Polymnia" looks as well here as it did in the New Gallery, and Mr. Sargent's "Portrait of Mdme. le Duchesse de S——" better even than it did in last year's Academy, being in a more favourable light. M. Lhermitte, in "Chez les Humbles" has played what is now the somewhat worn-out trick of introducing the figure of Christ among personages of modern life—in this case blessing the meal of the poor; the feeling of the work is pleasing, but the colour very dingy; a quality, however, which is a note in the proclivities of the modern school, who must paint everything in browns and greys. The State has purchased M. Ménard's "Temps Calme," a little sea-piece with a small ship becalmed on an expanse of sea. Mr. Stewart, one of the French-American colony of artists, paints a moral picture under the title "Redemption," in which the point is the sudden reflection and disgust of a much-dressed young lady in the midst of a party of very noisy cigarette-smoking fashionables; the point is forcibly made, but after all it is of more interest for the moral than for the art. M. Weerts's picture of "La Bella Simonetta," a half-length nude figure with her back to the spectator, looking out into the sunshine, is one of the few works of its class in the new Salon which can be called really masterly, and by pure force of painting is in a different category from the numerous figures, catalogued indifferently as "Avant le Bain" and "Après le Bain," mostly of little interest except to show that the artist can draw the figure.

It is not a great year in sculpture, comparatively speaking. There are in the great court of the Old Salon, no doubt, many finely modelled figures, but one does not find any work which can be called really memorable; any of those conceptions which strike one for their intellectual interest as well as for their fine execution. The most individual work is M. Mercié's monument to Armand Silvestre; a broken off column around which circle three nymphs in basrelief (small scale), while a fourth figure is seated in the rear of the column. Of this we may possibly be able to give an illustration. M. Lombard exhibits a heroic size monumental statue of Pierre Puget, mallet and chisel in hand, and an unfinished figure by him. There is a large fountain by M. Belloc, "Le Printemps et Bacchus," for a square at Perpignan, a little too restless in design; a pretty monument by M. Bernstamm to the author of "Le Monde où l'on s'Ennuie," in which a girl wreathes with garlands the stele bearing the bust of the dramatist; a fine kneeling figure of a Bacchante by M. Charpentier; M. Derré's "La Grotte d'Amour," a very impassioned group, purchased by the State; a statue of Krisis decking herself with the ornaments of Aphrodite, by M. Laoust, noticeable because it is really the perfection of elegance and finish of design, though rather too "pretty"; M. Lefebvre's personification of "L'Eté" by a figure of a modern lady in a broad-brimmed straw hat, which he has really managed to make quite sculpturesque (this is a Government Commission); M. Peynot's "Poésie Pastorale," a fine and poetic production; and M. Theunissen's two large monumental figures representing "La Seine" and "L'Escaut," reclined on lofty pedestals, and which are intended to decorate the bridge of the canal at St. Quentin. In fact there is plenty to look at in the sculpture, only nothing of such high and special interest as I have found in the central court of the Grand Palais in some previous years.

EDINBURGH ARCHITECTS AND THE PARISH COUNCIL.—At a meeting of the Council of the Edinburgh Architectural Association, held on the 11th inst., the terms and conditions upon which the Parish Council propose to elect an architect and superintendent of works was under review. On the ground that the remuneration offered was far below the recognised scale of professional charges, the Council of the Architectural Society expressed disapproval of the same, and resolved to communicate with the Parish Council on the subject, and to ask them to reconsider the conditions of appointment.

THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE usual fortnightly meeting of the Royal Institute of British Architects was held on Monday at No. 9, Conduit-street, W., Mr. J. Belcher, President, in the chair.

Sculpture in Relation to Architecture.

The Chairman announced that Mr. A. Gilbert, R.A., and Professor Lanteri, who, with Mr. T. Stirling Lee and Mr. W. Reynolds-Stephens, had promised papers for that evening, were unable to be present.

Mr. T. Stirling Lee said he had not expected to be the first that evening to be called upon to speak, but he wished to express the great pleasure he felt in being present, for under their late President and the present Chairman sculpture and architecture had made great progress. One wished first of all to ask what was this great desire they all had to express themselves in figurative language? From the very earliest time man had desired to express his thoughts in form, and in his tombs and temples had taken sculpture as the language. The great ideals of their old world have been written in that language, and what would they have lost of the thoughts of the Egyptians, Greeks, Romans, and Florentines if sculpture had not been associated with architecture? Architecture was the most open of all books. There it was in the streets for everybody to see, and the sculptors wrote their thoughts on these buildings in figurative language. Any sculptor who had to do anything with a building could not approach it except from the point of view that it was the highest sphere in which he could use his art. He had got to hand down to future ages the thoughts of his time, and one did feel in this sense that every sculptor ought to be a very deep thinker. He must be, and must always have been, a deep thinker. The sculptor had to observe nature very closely because he was going to use these symbols and their characteristics in his language, and he had to hand down the environment in which he lived. From those things he could come to the present day, and he would ask whether we, as a nation, understood the figurative language? Did we, when we put sculpture on our buildings, really grasp the fact that we were putting on a language which was going to be read and understood by the public? Was the figurative language or symbolic language a living thing to-day? After they had put all their observations of nature into their work, how many of the persons who went by would stop and read it? And yet that was the use of sculpture in architecture. One went to work with great ideals, and had a longing to express—whether religious views, scientific discovery, the attributes of good government, the virtues, or the literary arts and sciences. They took them all as their subjects, but how real were they to the sculptor to-day or to the public in the sense of a figurative language? In the old days there were no books, and people illustrated their thoughts from nature, and their touch with nature made the language of the sculptor intelligible to them. That they had lost that there was no doubt, and to a great extent they had lost the use of that language on their buildings. Now they came to the other side, which was the æsthetic side. Here they came to a thing which must always exist as long as architects would use ornament as part of their scheme of design. Then came the highest form of ornament—that of masonry; because from the very first association with architecture the sculptor had got to realise that his carving was masonry, and that it was to be part of the building. The first thing the architect desired was to use the highest form of decoration—the human figure; but he supposed he was right in saying that the first thing those who employed the architect knocked off was figure sculpture. He would like to know if ever there was an architect who had a free hand to use what he wanted. No doubt, however, it was the desire in all designs to use that highest form of decoration, the human figure. And then the sculptor had to consider what was the idea in that part of the building he had to decorate; what lines he had to carry through; what proportions of light and shade he had to carry through; what was the scale; and what was the sort of proportion the architect wished in his design. Sometimes the building might want flowing lines, and these lines must be in the sculptor's panel. He would like to show how wonderful these lines were to anybody who really thought out his art with architecture.

Every problem that he ever came across in architecture was found in the Parthenon, and so he would illustrate what he meant by that building. The Parthenon frieze was a wonderful illustration of the treatment of line. There was one panel which puzzled everybody, because one figure was deeper in its relief than any other. It was the last panel but one in the frieze, and it was not until they had got these panels all put together that they found the reason for it. It was simply the point of view of composition of line. The whole frieze was carried round and the sculptor wanted to stop, and he did it by carrying the lines of the sculpture and the architecture down the building. The whole thing was one beautiful continuity of line and composition, and showed how marvellous the Greek idea of line was, for even the heel of the boy in the panel was part of the composition of line. Now he came to the point of view of light and shade. The light and shade of anything when they had to do with architecture was governed by the light and shade of the mouldings, and in the frieze they found the depth of the relief was governed entirely by the light and shade of the mouldings. The panels were all within a plane. So wonderful was the way in which the Greeks studied the law of optics that if they got an angle under the colonnade and looked up they might take a straight edge from the point of view they were looking and would find that the whole of the composition was covered from that plane. Everything seen at a distance must be governed from the point of view at which it was seen. Then they came to the point of view of impression, and to show how the Greeks thought deeply, and how they associated light and shade, he would refer to the Phideas' "Birth of Athena." Here the sculptor was going to illustrate the birth of "Wisdom," and how was he going to do it? Wisdom was born with the sunrise, and so the sculptor illustrated the light and shade of the day. He started with the rise of the sun, went on to the full daylight with the sun at its meridian, and closed with the twilight of evening. That was the sculptor's idea, and it was perfectly right. They knew that when some of the people saw the figures in the studio they asked the sculptor what he had done, but they knew what it looked like on the Parthenon. The one idea of Phideas was to illustrate his light and shade scheme, and they could see how the poetry of thought entered into his scheme. Then they came to the question, "Can you get in one flat plane the effect of anything like perspective?" Phideas wanted his deities seated in a semicircle, and how was he to get it? If they went to the Parthenon Room at the British Museum and stood at the further side to look at these deities they would find, by the way he treated his chairs by cutting them in one plane, and the way he treated the angle of these chairs, that at a distance the deities formed a semicircle. It showed how wonderfully the Greeks thought. Again, in the presentation to Athena they saw how gradually Phideas diminished the figure so that it seemed to rise from the earth. He mentioned all this to show what could be expressed in sculpture on a temple or public building or whatever it might be. Another wonderful example of the treatment of light and shade was to be found in the panel by Phideas of the white cow. In this panel they saw the influence of the architect, the sculptor, and the painter, and it was one of the most wonderful pieces of carving in the whole of the frieze. They were often laughed at when they talked about colour in sculpture, but all he would say was that if one felt colour it governed one's treatment of a subject. He had tried to illustrate how first thought governed them, and then how line, general proportion, light and shade, and even impressionism governed them in relation to their work in architecture, and now he came to the practical side. Mr. Lee proceeded to describe from photographs the different methods of work by Phideas, Michael Angelo, and Giotto, and remarked that everything to do with architecture must have proportion with the lines of the building if they were to have harmony. But what was their position that night? They had to deal with two classes of sculptors—one the plastic and the other the glyptic; the one was a modeller and the other a carver. The carver was one who served his time in a shop and went out and carved in stone; the other went to schools and put his clay up and gradually went on to work it. With architecture they must work with the carver. If they were to do anything with architecture at all it must be from the geometrical side, and if they wanted an example of what he meant he would ask them to put a modeller on a building. They would then find the thing full of black and white, but there would be no surface plane. Directly they put a man on stone he would not take off more than he could help, but would leave the stone part of the building. A very serious thing for England was that they had very few carvers, and they were doing less and less of their own work. He believed that if a man was going to put sculpture on a building he should do it *in situ*, and he should go with the one idea that his work was part of the building; he ought not to take a modelled figure and put it on a building. It was said that this method of working would take too long, but he did not think so. The man who understood carving would get his design and line it out, and after getting the rough coat off would come and put his own work on it, and if he did that he would be quicker than the man who modelled the figure and got it carved by someone else. They must come back to the first principle that sculpture and architecture must work together, and that the sculptor must come with the idea that he had to enrich architecture.

Mr. W. Reynolds-Stephens said he was glad that Mr. Lee and himself, who worked so differently, saw so many things in common. To him architectural sculpture fell under either of two heads. First, constructional sculpture, or that which was formed out of a piece of the structural material of the building, and which actual piece had to perform its original purpose as weight-bearer or receiver of a thrust, such as columns, caps of columns, keystones, corbels, brackets, and the like. Secondly, there was the applied or superficial sculpture, under which heading he placed niche figures, the filling in of spaces such as spandrils, panels, and friezes, also mere surface work upon walls, and other structural features. In both classes fitness for its purpose should be the greatest quality of the sculpture, and in its quality of fitness beauty stood supreme. Unless the sculpture added beauty to the building it had no logical reason for its existence. The time when its chief object was to record history was now of the past. In structional sculpture the absolutely essential requirement was that it not only aided, but also appealed to the eye and brain as aiding, the building material to do its work, be that work either support or resistance. How frequently one received an impression of weakness owing to the unfortunate selection of lines and masses even if an actual serious weakening of the material was not there. Yet they had the magnificent results of the past to refer to. Of these he placed first the caryatides of the Erechtheion. Every line of those figures was designed to aid the impression of carrying; the very selection of type of person, the restraint from all suggestions of movement in the pose, they stood there as if nothing could tire them, but yet as if they felt the responsibility imposed upon them; but then the architect had not overloaded them with work, the bulk of building they carried being reasonable. How different were the couple of crouching figures one frequently saw nowadays, struggling under a load of 30 ft. or more of bay window. Another example which had always given him the greatest satisfaction as structional sculpture in conjunction with architecture was the winged Assyrian lion, which formed the base of each pier of some king's doorway in Assyria, and which was now in the British Museum. The great wings, folded back tightly against each side of the pier, created the impression that they were there to hold the wall safe from lateral movement. The great lesson to be learned from thoughtful analysis of the works of the past—from their mistakes as well as their successes—must result in the appreciation of certain laws which should guide them in their present work. No one regretted more than he did the repetition of those works in the present, for he felt that, whilst the laws of fitness which the old sculptors established beyond question should be followed, yet the thought and feeling should be entirely of our own time. That was the only way to have living sculpture, but generally it was merely a resuscitation of dead bones that was introduced. He would like to know how they, as architects, thought of a matter which always worried him in certain examples of Michael Angelo. He referred to the placing of the four lying figures on the tombs of Lorenzo and Guiliano de Medici. On him the impression was created that each block of white marble of which the figure consisted was slipping sideways off the architectural base. One point where they might avoid following a fault of the past was the placing of the figures showing no appreciation of the laws of gravity. In their paintings artists had long ago abandoned the faults of the painters who knew nothing of perspective, but in architecture one saw figure after figure reaching out and pretending to carry a mass of material when in reality the material carried the figures. In the avoidance of this mistake Alfred Stevens was most happy; he obtained great richness of light and shade, and yet he did not exceed the limitations of the possible. If a figure projected beyond the limits of gravity another figure was sure to be behind holding it back. With regard to the second head, applied and superficial sculpture, he felt that in respect of the mere surface ornamentation of walls the most fitting work was that which was incised work, the retention of the surface of the wall being recognised as the main characteristic in the treatment. He referred to the Assyrian bas-reliefs of the lion hunts of King Assurbanipal, in which he felt the treatment of the animals placed these bas-reliefs as being the finest things of their kind in the world. Before leaving outside work he would venture to express regret at the large amount of money spent on sculpture which was wasted owing to the placing of it apparently without regard to the neighbouring houses and to the width of the streets. How often was the sculpture only to be seen properly from the attic windows of the opposite house? He supposed the Greeks started the fashion for friezes, but then buildings were always longer than they were high, which was seldom the case in towns now, owing to the great value of land. These Greek buildings could be seen at some distance, and the scale of the figure work and of relief they adopted told well in their strong sunshine and clear atmosphere, and was not of necessity suitable here under such very different conditions. He was going to refer to a definite example of the misuse of sculpture in a new building in the Strand, but perhaps it was better that he should refer to an example of a building which probably most of them knew, and in which he felt they had a real fitting way of treating the sculpture. He referred to Colney Chapel, at All Saints' Convent, St. Albans, by Mr. Leonard Stokes. It was a site which would inspire any sculptor to do his best, and he thought that Mr. Wilson in his sympathetic work had not wasted his chances, with the result that the sculpture did really add to the beauty of the building as a whole. He felt that many British architects were to be congratulated on their appreciation of the necessity of protecting outside sculpture somewhat from the stress of the weather. Much of the modern French work was wrongly treated in this respect. It seldom had any moulding or coping above it, and, in fact, the architect seemed to select the skyline and the most exposed part of walls for decoration with sculpture. He mentioned that because one saw buildings cropping up in London from time to time in which French influence prevailed, and although they should be ready to welcome any good influence, yet they should look critically into things and make sure that they were good. They cordially acknowledged the good influences they had received from their French brothers in art, but it was no compliment to them to receive everything without question. This question of the wear of water and frost was one too frequently lost sight of by sculptors, and a recognition of it should be insisted upon by architects for their stone carving. It was a thing the old mediæval sculptors understood so well, and the great use they made of vertical lines was in great measure the outcome of this necessity. It was not only an eye of beauty which dictated it, but practical requirements as well. With reference to the treatment of material as affecting both inside and outside work, he believed that one of the great defects of their British school of sculpture was the quite secondary place given to the consideration of the material in which the work was to be finally produced. The design and modelling was in most cases the only thing seriously considered. Slavish imitation of a model and slickness in use of the clay appeared to be all-absorbing. When sculpture was applied to architecture, and more particularly when it was for structural parts, he felt the treatment of material was all-important. In their school training this matter was practically excluded, and he thought that architects could render a real service to British sculpture by emphasising

the necessity for a better consideration of the treatment of material when they required to use it. As to interior work, it was wiser that figures should never be used on ceilings. The use of figures springing from the cornice and stretching on the flat of the ceiling without any regard to the law of gravity was to him an absolutely unfitting use of sculpture. He regretted its use almost as much for panels, whether painting or sculpture on ceiling. The human figure was bound to assert itself and call for attention from people—below—with consequent neckache to those who looked. All things considered, he felt that figure work on ceilings was a mistake, and there was ample scope for introducing them on friezes, doorways, and especially on chimneypieces. Nothing was more fitting as a motive for decoration of ceilings than flowering tree forms. In regard to sculpture inside buildings, he thought attention ought to be paid to proper lighting. One sometimes saw sculpture in places where little or no light reached it. He would not ask for undue consideration of sculpture, but as fitness for purpose was one of the greatest qualities in all architectural design then he did say, unless the sculpture the architect was thinking of could be properly lighted, it could not be the right place to use it. In private houses a great field for the use of sculpture, and of which little use was made, was the chimneypiece. One place where sculpture was greatly used and very often maltreated was for the decoration of altars in Christian churches placed directly under an east window. He said maltreated rather than misplaced because few would question that the altar was the place above all others for placing the most precious decoration. If the east end of the church had been decided upon as the most fitting place for the altar, then undoubtedly the fault lay with the east window. At one time he believed there was a strongly established symbolism of the hope of the Resurrection in the east window, but certainly that had been lost sight of now because the majority of east windows were filled with glass illustrating a hundred and one subjects rather than the Resurrection. In the oldest Christian churches no east window, or only a very small one, was introduced, and on the ground of the better lighting of the altar, which should have consideration, it would be more fitting and a more artistic treatment to obtain the light from the side walls. By this means also the choir could be adequately provided with light, especially if those windows were kept free from dark stained glass. In the English mediæval tombs the sculptors had the keenest appreciation of architectural treatment in their work, and the simplicity of line and dignity in the recumbent effigies was very remarkable, except perhaps in the case of some which were resting sideways. Regarding them, however, it was a matter for rejoicing that the colouring by which they were undoubtedly decorated at one time had perished, because he was afraid that the colouring must have been very gaudy and cut up, and nothing like so fine as the sculptural qualities. He felt that those tombs to which colour was merely applied could not have compared for a moment with the few in which an admixture of material was used, such as metals, enamels, etc. He suggested that the judicious use once more of a mixture of materials for inside sculpture could be a great aid to beauty if fittingly used. Nowadays the average standard of sculpture applied to buildings was not up to the quality of the architecture; there were some brilliant exceptions, he knew, but generally it was so. He felt that this was because sculptors wanted treating with more confidence and less as machines. The money paid was usually insufficient to provide thoughtful work, yet the total amount spent on sculpture as ornamentation in many buildings was ample to supply that building with a few pieces of good work to the great gain of the building and the sculpture. With many of them he knew that sculptors received all sympathy, but with others they did not. He would say to the architect: Employ individual sculptors; set down as tightly as you like the conditions it is just and right you should impose; explain fully the site for the work and the surrounding materials; state approximately the scale of the figures; set the direction of line desirable to be emphasised and the flatness or height of projection; state any subject you want illustrated; emphasise that you require a true recognition of the use of material and a consideration of weather in the design; state the sum of money available; and even let the sculptor make a sketch model for you to see. But then give him a freer hand and the chance and credit of being the designer of the work, and as a result you will get the best out of him. Instead of most sculptors, as now, looking on their architectural work as potboilers they would give their very best work. By such means architects might not get all they expected, but they would get individual character. Think of the figures on Wells Cathedral front done by different sculptors. Did the architect get what he expected? The architect probably specified for statues of a given size, yet some of them were 6 ft. and some 7 ft. and some 7 ft. 6 in. for the same-sized niches. Yet was the whole artistic result of the cathedral seriously damaged? Was not the living character of the sculpture a greater gain? Mr. Reynolds-Stephens felt he might be wrong in much he had said, but it was the frankly expressed opinion of a serious student of a great art.

Sir John Taylor, in proposing a vote of thanks to Mr. Lee and Mr. Stephens, said they would agree with nearly every word which had been stated by the speakers. Although this subject of the co-operation of the sculptor and the architect had been brought before the Institute on several occasions within the last few years, he felt they had never had it put more strongly before them than that night. To his mind nothing could be of greater importance than that the architect and the sculptor should co-operate in the preparation of the design. It was no use whatever to have the architectural design prepared and then afterwards do the best they could to fill in the parts of it which required sculpture. It was much better for the sculptor and architect to co-operate in the preparation of the design. He knew of one case where the niches were all formed for the figures, and, for want of co-operation between the architect and sculptor, when the figures came they were much too large for the niches.

Professor Beresford Pite, in seconding the vote of thanks, said they were glad to feel that sculptors recognised this as a very important subject. It was important to sculptors and without doubt it was important to architects. Of its importance to architects he was afraid they were not as seriously convinced as they might be, but he would go a little further and say that, as to its importance to sculpture, sculptors were not yet seriously convinced. So far as architects were concerned he might illustrate it from a point drawn from Mr. Lee's exordium. The architect had a building on which he put sculpture, but did he ever trouble himself seriously about what that sculpture meant? He doubted it. The architect was not really serious about it. He wanted so much ornament, and so he used sculpture, and in some cases he wanted sculpture to cover laches in his design. At all events, the sculpture lacked the inspiration of effective birth, and the result was that any model could be translated into masonry to provide the architect with a broken surface. In London they had an extraordinary object-lesson of the want of seriousness in the architecture of sculptors in the pedestals and thrones of their statues. Few things were more deplorable than the utter weakness the modern sculptor showed in appreciating architectural design when it came into contact with figure work. He did not know that they were demanding the impossible either from the sculptor or the architect, but he feared they were going to the wrong school to learn if they took their architecture from the Parthenon, because no Parthenons were built nowadays, and the sculptor was going to the wrong school to learn if he thought he would have the opportunity of doing his carving upon such a building. What was the practical issue of the matter? There was only one remedy, for the fault which he had ventured to suggest lay equally with both, and that was effective study. They would find the era which corresponded with their own, and from which they could derive practical lessons, not in the distant past of Athens, but in the Renaissance. They were to all intents and purposes men of the Renaissance now; they were as much men of the Renaissance whether they designed in Gothic or not. They had to go to the past perforce and dig there and to recast their discoveries to modern requirements. They could not escape from the institutions of the age in which they were cast. When they looked to the Renaissance they found that Michael Angelo used mouldings not for the sake of their archæological or antiquarian perfection, but because of their profiles and play of light and shade. He did not know much about the early life of Alfred Stevens, but he imputed the extraordinary success of his architectural treatment of sculpture to that long term of years that he toiled up and down Italy. It was in those years of tramping and studying Italy that he felt his way into the real meaning of architectural qualities; and he also ventured to think that Mr. Alfred Gilbert owed a great deal of his success to years of patient study in Italy. His own view of the present condition of things was somewhat pessimistic, but he hoped that a new race of sculptors would feel that architecture was a living art, and that architects would feel their way to the basis of sculpture. Could it not be said in treating the subject generally that the tendency of the Greek employment of sculpture was to employ it in architecturally framed panels. When they came to Gothic times, sculpture was applied, and the figures were more or less detached. When they came to the Renaissance the sculptural forms melted in with the architecture.

Mr. Hugh Stannus said he felt about sculpture that it might be applied for two things. Firstly, to tell a story, and, secondly, to make fine buildings. He had dealt with the first branch in a lecture he gave before the Society of Arts. Mr. Stephens had made an interesting separation between the figures which were dealt with in the structure and those figures which were merely applied, but he would only say that where figures which were used as support should be something less than human. That might be done in one or two ways. They could give what was called a "herm" or they might cut off the arms or brutalise the figures. In front of the War Office there was a couple of figures supporting a small porch. These were not individualised, but had they been figures of Lord Wolseley or Lord Kitchener it would have been felt that they were entirely out of place. Now that they had had this subject before them four or five times he ventured to suggest that they should codify the whole of the ideas and submit them to the consideration of the Art Committee, and they might publish a book on the subject, edited by Professor Pite. He was reminded of some sculpture by Mr. Lee at St. George's Hall, Liverpool, and when Mr. Lee was illustrating his remarks from the Parthenon he could not help thinking of that noble series of panels with which he enriched St. George's Hall. Professor Pite seemed to think it was not right that they should study the Parthenon, but he did hope they would always aim high. They might not have a Parthenon to build or to sculpture, but as the greater contained the less he did not think any architect or sculptor would do badly if they started out able to build or decorate the Parthenon. They might perhaps have only to build pig-styes or alter public-houses, but they would have the satisfaction of applying the art which might have made the Parthenon to the pig-stye or the public-house.

The Chairman said that he felt bound to say that the sister arts of sculpture and architecture had drifted apart, and he thought that architects were somewhat to blame in the matter. He trusted that in the future the two arts would be brought closer together and would work together from the beginning. They must not forget that they were sister arts, and that architects must not allow sculpture to be used improperly or to serve merely as pinnacles and terminals or to add weight to the top of a buttress. It was on that account that they had drifted apart. He knew a sculptor who said to him on one occasion, in speaking of his pedestal: "I do not want any architecture because it detracts from the figure; I prefer to place it on a rough-hewn block." Just as architects had begun to learn the uses and advantages of sculpture in relation to buildings, so he hoped that sculptors would learn that architects could be of great help in aiding sculpture. It was true in the case of buildings the architect must take the lead, and the sculptor must support him; but in the case of monuments, where there were groups of figures, then the architect might well come in and help the sculptor by making a shrine for his work—for making a setting to the jewel. As Mr. Lee had remarked, sculpture had a special tale to tell; it had to endeavour to tell some story, or to give some illustration or some information with regard to its purpose. A building also had a tale to tell and a message to deliver, and architects asked the sculptor to come in and help them in the expression and in the carrying

on of the tale, as it were. His views were pretty well known on that subject, but he would like to give expression to one or two thoughts. One was that architecture dealt with straight lines, and sculpture with round lines, and it was the contrast of the beauty of curved lines against the perpendicular and horizontal which helped on their work. There must be a certain balance and uniformity in their work with regard to buildings, and he also thought that scale was very important—much more so than had been stated that evening. He thought it was important where two or three sculptors were working together that the scale of their figures should be in proper relation to each other. He was not speaking of separate panels or subjects. He did not consider that in that case sculptors helped the architects at all, for the subject might not be connected with the building, and the architects, then, only provided a frame for the subject. Where a sculptor could help an architect was in the expression of the purpose of the building itself. Relief also was a most important matter that had to be considered. Relief work stood in sculpture something like decorative work in painting, and he felt that relief work was the most important means the sculptor had of helping them. Figures in the round had perhaps a more distinct message, but they should place them in a proper position where they could deliver their message. Whether they were in the round or in relief a great thing was that they should be part of one subject.

The vote of thanks was then agreed to.

Mr. Stirling Lee, in reply, said it was only by interchange of opinions that they learned, and there was no doubt that sculptors did have a great deal to learn from architecture. He could quite understand that remark of a sculptor which the Chairman had referred to, because they knew nothing about architecture. If a thing was to be perfect the base was quite as important as the figure-work, and it was owing to the lack of architectural knowledge that they were doing such bad public statues—they were individual statues, but they did not fit.

Mr. Reynolds-Stephens, in also acknowledging [illegible] of thanks, said he felt that if there [illegible] co-operation from the beginning of a building design it would be an absolutely ideal thing, but that would never come about with their present system of education. It was his only grievance against his old school of the Royal Academy that he was not obliged to learn architecture as a sculptural student. If every sculptor was obliged to study architecture the advantages would be manifest, and he felt that architect students, with great gain to their professional work afterwards, should study and appreciate the aims of painters and sculptors.

The Chairman announced that the next meeting of the Institute would take place on June 5.

THE SURVEYORS' INSTITUTION.

AN ordinary general meeting of the Surveyors' Institution was held on Monday at No. 12, Great George-street, Westminster, S.W., when Mr. J. D. Wallis read a paper on "The Licensing Act, 1904." The author dealt with the general position before the Act, the grounds on which on-licences can be refused without compensation, renewal authority, and the compensation authority, the compensation fund, the procedure for fixing the compensation, the basis for compensation, the value with the licence, the value without the licence, the division of the compensation, new licences, the monopoly value, and comparison of compensation value and monopoly value.

In speaking of the value of the premises without the licence he said that the valuation of the premises, as if they were not licensed premises, would bring in a number of considerations, varying in each case, but would nevertheless be a matter well within the experience of most surveyors. The principal point to consider would be what value they have for other purposes and how far they are adaptable or suitable for other businesses. In the majority of cases licensed houses (except the old beerhouses) had been specially built for the particular trade to be carried on, and in many cases the buildings would have little value for any other purposes, in fact the larger the house and the better equipped for its purpose, the less value, comparatively speaking, it would have without the licence. In the large towns many imposing and expensive structures, with elaborate fittings and fixtures, would become almost worthless, whilst small beerhouses and many country inns might more readily find a use (of course at a much lower rent) either for ordinary dwellings or for other purposes. The difference in value between the premises with a licence and without a licence would, no doubt, be very great. This would be so even in the case of a small beerhouse, as, in such places, the amount of trade done was frequently very large in proportion to the amount of accommodation, and instances could be quoted of houses let at rents of from 200*l.* to 300*l.* a year, which, without a licence, would let only as small dwellings, or possibly for shops, at not more than from 20*l.* to 40*l.* a year. In many cases the difference would not be so great as this, and each case would, of course, have to be dealt with on its merits, taking into consideration the best possible use to which the building could be put and the best rent obtainable for it. The multiplier to be applied to premises without a licence would be less than in the case of a house with a licence, this being another factor causing a difference in the valuation. For instance, a public-house with a licence might be worth 200*l.* a year, which, if taken at twenty-six years' purchase, would give a value of 5,200*l.* Without a licence, the building might be worth 100*l.* a year, but this rental could probably not be taken higher than the 5 per cent. table, or at twenty years' purchase, which would give 2,000*l.*, a difference in capital value of 3,200*l.*, but in annual value of only 100*l.* It was not clear how far the question of site value, apart from the value of the premises, could be considered. Some licensed houses, in commanding positions in the centre of large towns, would, if devoted to other purposes, be of greater value than as licensed premises; that was to say, it would pay the owner to forfeit the licence, to pull down the house, and erect on the site shops and offices, or flats. In such a case compensation would probably be claimed on the ground that the premises, having lost the licence, would be reduced in value. Such examples were comparatively few in number, but the question of site value was an important one; the instance given being but an extreme case intended to illustrate the principle. To the compensation had to be added the amount of depreciation of trade fixtures. This would, in most cases, be the difference in the value as fixtures used in connexion with the premises as a going concern, and the value for breaking up purposes, or for sale at auction prices.

Visit to Exeter.

On the 25th and 26th inst. the Institution will hold meetings in Exeter, when papers will be read and visits made to places of interest.

MAGAZINES AND REVIEWS.

IN an editorial article under the title "The Reform of Municipal Architecture," the *Burlington Magazine* supports strongly the protest recently made by the Institute of Architects against the employment of official surveyors and engineers to design municipal buildings. The article entirely repudiates the criticism sometimes made, that the architects are consulting their professional interests in the matter. As a fact, it may be to the interest of architects to be employed in such cases, but that, the writer urges, is not the point for the public to consider. What they have to think of is the opportunity of getting the best architecture in their public buildings, and that is not likely to be got from municipal officials. The article concludes with an application of the argument to the case of the proposed London County Council Hall, recommending (as we have already done) an open competition. In the same issue a writer who signs "P. A." contributes what we think a very wrong-headed article under the title "The Failure of our Water-colour Tradition," the gist of which is that pure water-colour must always be and has always been a comparative failure, and that there is no chance for water-colour except with the aid of body-colour and "wiping out." With these means "it can rival oil painting in strength and splendour." To which we reply that it is not meant to rival oil painting; it is a perfectly different art, and the old tradition was the right one.

The *Art Journal* commences with an article on "The Chantrey Gallery as it should be," giving a list of illustrations of works with which "an ideal Chantrey gallery" should have been commenced. The list as a whole does not commend itself to us as an ideal. The writer of the article seems to think that the object of the Chantrey collection should be the illustration of the newest developments in English art. Those should be included, no doubt, but his position is not central enough. A representative Chantrey collection should be founded on the works of the established and recognised leading artists of the day, not on exceptional works, however clever; and, in spite of some mistakes which the Academy Trustees have made, we are inclined that on the whole their guidance is the safest. We do not want a Chantrey collection of "new lights" in art.

The *Architectural Record* (New York) contains an article on "A New York House of To-day," that forming No. 50, East 52nd-street, New York, of which Mr. J. H. Freedlander is the architect. The elevation seems to us to have the worst qualities of a modern French street house without its refinement; but the interiors are much better, and the subject is certainly of interest to English architects. A long and fully illustrated article on "The Château of Langeais," by Mr. F. Lees, forms the most important and valuable portion of the contents of the number.

The most important article on *Public Works* is a long and fully illustrated one on "The Dover Harbour Works," by Mr. A. T. Walmisley, the engineer to the Harbour Board. The number includes also an article on "A Great Indian Reservoir," that of Marikanave, in Mysore, by Mr. R. B. Buckley, late Chief Engineer of Bengal. There is also an article on "The Repair, Straightening, Raising and Falling of Chimney Shafts," by a special correspondent, and one on the construction of "Cast-iron Tanks," by Mr. W. J. Jones.

To *Technics* Mr. Brysson Conningham contributes a short article on "Concrete," the most useful part being that in which the writer deals with some essentials governing the proportions of its constituent materials. It is unfortunately the fact that the composition of concrete is often settled in a somewhat haphazard manner, and specifications are by no means uncommon in which no attempt is made to define the relative proportions of the sand and aggregate, and in which the importance of filling the voids in the latter appears to have been overlooked. The writer takes the only correct view, that the sand and cement should be regarded as mortar, the function of which is to surround the stone or other material employed as aggregate, much as ordinary mortar is used in the interior of brick and stone masonry. Two important postulates stated are that cement and sand mixed with water diminish by about one-fourth of their joint bulk measured dry before admixture, and that gravel and broken stone also occupy less space when mixed than they do apart. The bearing of these points upon the determination of the proper proportions of concrete is then explained in a manner that should be helpful to young architects and engineers. While emphasising the importance of mixing, the writer does not mention the admitted superiority of mechanical aids to this process, merely remarking that "in extensive undertakings, concrete is more economically mixed by mechanical appliances." In our opinion the greater efficiency so secured is of far greater moment than economy, and as concrete-mixers can now be obtained in all sizes, their use ought to be regarded as imperative in all building operations. With regard to the quantity of water, the writer's opinion in favour of fairly wet concrete is one we quite agree with. The article concludes with a few data as to the strength of concrete, and serves the purpose of directing attention in a general way to some of the practical points connected with the preparation of this valuable material of construction. "Steel Purlins for Corrugated Iron Roofs in Theory and in Practice" are discussed by Mr. E. Fiander Etchells, A.M.I.Mech.E., his object being to effect a compromise between practice, as represented by the "old workman," and theory, by "the young theorist." Having shown that in roofs capable of withstanding the gales of years the calculated stress on steel purlins may be as much as 50 per cent. in excess of the actual breaking strength of the material, Mr. Etchells states some new rules applicable to all ordinary cases of purlin design. These formulæ do not justify the excessive spans and spacing very frequently adopted, but they allow more latitude and are more rational than the common method of computation, in which the various assumptions usually made give rise to the considerable divergence existing between practical and theoretical views as to the design of the members here considered.

In the *National Review* Mr. D. S. M'Coll resumes the attack on the Royal Academy which is now the fashion, under the title "The Royal Academy and National Art," the inference being, of course, that the Royal Academy does not represent national art. To which we reply that at all events it represents it much more than any other English Society existing. Mr. M'Coll's programme evidently aims at disestablishing the Academy altogether, in which we do not think he is likely to succeed. The real fault of the Royal Academy, in its corporate capacity, lies in its attitude of superiority to all criticism, and refusal to give reasons or explanations for any of its actions. Many Royal Academicians are personally most modest and amiable men, but the tradition of the Academy as a public body is to ride roughshod over every one who differs from or criticises it; and there is where it makes enemies.

The *Nineteenth Century* contains an article by the Editor of this Journal, intended for picture-seers and not for artists, on the question "What are Pictures For?" which, we may take the opportunity of saying, was the original title of the article; the modification of the title by the Editor of the Magazine into "What is the *raison d'être* of Pictures?" by no means commends itself to the author of the article.

In the *Century* we have again the Château of Langeais in the course of an article (the second) on the Château of Touraine, by Mr. Whiteing, who deals in this issue with Loches and Langeais. The article is, of course, merely literary, but the illustrations, from "colour drawings" by M. Jules Guérin (that is, we take it, drawings specially made for reproduction in colour), are very fine and effective.

Harper commences with an article by Mr. Walter Maunder on "Magnetic Storms and the Sun," including an interesting description of the "Magnet House" or magnetic observatory at Greenwich, installed in 1838 for the continuous registration of movements of the magnetic needle. Mr. Jacques de Morgan, Honorary Director-General of the Antiquities of Egypt, contributes an article on "The Temple at Susinak," being the result of the latest excavations at Susa. He describes in detail the bricks used, without mortar, and with hand-written inscriptions often on their faces giving the name of the king who made the building, and other information in regard to it. The bricks found in the temple of Susinak alone, we are told, would furnish a complete list of the Elamite kings. Illustrations of some of these inscribed bricks are given, and of a number of ornaments found in the ruins. A short article on "Subiaco" by Mr. W. L. Alden gives a description and illustrations of what must be one of the most picturesque places in Italy.

In *Scribner* an article entitled "The Marble Mountains," by Mr. E. B. Child, gives a very interesting description of quarrying in some marble quarries in the United States, we do not exactly make out where, except that the "Green Mountain" is one of the localities named. It is accompanied by most effective illustrations in colour. "Over Night at the Edge of the Grand Canyon" (it used to be spelt "cañon"), by Mr. Benjamin Brooks, is accompanied by illustrations of what appears to be some of the most extraordinary rock and mountain scenery in existence; the six or seven photographs are well worth attention; they are what one might fancy the scenery in the moon to be like.

The *Antiquary* contains an article by Mr. William Martin on a subject likely to be much under consideration at present —"The Law Relating to the Protection of Ancient Monuments and Buildings"; an answer to the question so frequently put, in one form or another, by the owner of such relics—"May I not do what I like with my own?" The article is to a great extent a *résumé* of the existing law on the subject, but contains also important suggestions (with which we are quite in sympathy) for extending and amplifying its powers of interference with an owner who possesses remains that are of historic value to the nation. "The other end of Watling-street," by Mr. Francis Abel, is an interesting article describing the vestiges in the north of England of the Roman Road which commences under that historic title in London.

The *Gentleman's Magazine* includes a short article by Mr. W. Paley on "Passenger Traffic on Canals," a brief sketch of the history of the subject, and of travelling on canals in the days before railways.

EMBROIDERY AT THE BURLINGTON FINE ARTS CLUB.

THE Exhibition of English Embroidery executed prior to the middle of the XVIth century at the Burlington Fine Arts Club, Savile-row, is unique of its kind. The thirty cases of exhibits worthily represent the art of embroidery in England of mediæval times. English embroidery among all the arts stood in most repute; it was specially valued abroad, many of the finest specimen pieces finding their way across the seas. The term *opus anglicanum* is found in French, Italian, and Spanish documents, denoting not only the country that produced the work, but indicating also its value and excellence. Documents show the astonishment of the Normans at sight of the splendid state robes worn by the Conqueror and his chief nobles on his return to Normandy after his conquest of England. At Durham Cathedral there are fragments of beautiful and skilful work of Anglo-Saxon times, of which photographs are shown at the exhibition. The fragments are of great beauty in design; the colour is unrecognisable. They must be the effect of an existing tradition or school of work of which there is no trace. The art was fostered by the religious houses, and the exhibits shown are nearly without exception of ecclesiastical character. No doubt ecclesiastical vestments were more carefully preserved than lay garments, and it was, besides, the custom of the wealthy and noble to present their splendid robes of ceremony to the religious houses, to be turned into altar frontals, copes, and chasubles. The art was practised by men and women, and was greatly favoured by royal ladies; at the beginning of the Xth century Edward's Queen Aelfflæda produced the fragments alluded to at Durham Cathedral. As in the other arts, the high-water mark of excellence in English embroidery was reached in the later part of the XIIIth century. Compare the painted photographs 1, 2, and 3, the Ascoli Cope, the portion of the Toledo cope, and the painting of the cope with the "Tree of Jesse" respectively, with any of the work of the XVth or XVIth century. The execution of the earlier examples is marvellous and the amount of toil incredible, only to be appreciated by comparison with the more careless and coarser work of the later period; the difference of half a century is clearly marked in Case B, where a cope, *circa* 1300, hangs by a chasuble of sixty years later. One of the most superb examples shown is that in Case I, a chasuble of red velvet, embroidered in gold thread with the three lions of England upon a ground covered with intricate foliated scrolls of gold, amongst which are figures of men and women. Case K contains one of the finest copes shown. It is of the middle of the XIVth century; it is divided into three bands of Gothic arcading, the columns formed of twisted oak stems, the branches of which canopy the figures in each arcade. The work of the XVth and XVIth centuries is at its best when free from figures; some of the velvet and silk brocade mounting the embroidery is magnificent. A chasuble of the XVth century in Case X and the Fishmongers' Pall in Case T are noticeable in this respect. The exhibition remains open during the week, and should not be missed by lovers of Gothic design and romance in art.

THE ORDNANCE SURVEY.—The International Geographical Congress recommended that a map of the world should be made to the scale of one-millionth, or about sixteen miles to 1 in. The Ordnance Survey authorities, acting, it appears, upon the suggestion, have already issued a map of the United Kingdom to that scale and printed in colours—the coast water being tinted in blue, the lakes and general outlines in black, and the hills in brown. The preparation and issue of the coloured one mile to 1 in. and four miles to 1 in. maps of the United Kingdom are making good progress under the superintendence of Colonel Johnston, R.E., director, who has just begun to publish some sheets for Scotland of the 1-in. map, and will shortly complete the ½-in. map of the United Kingdom with the issue of the sheets for the northern counties of Ireland. A former inconvenience is now removed by the folding of the maps in such a manner that one can read any part without spreading out the entire mounted sheet.

DUKE OF RICHMOND MEMORIAL, CHICHESTER CATHEDRAL.—On June 15 will be unveiled the new east window in Chichester Cathedral which will form a memorial to the late Duke of Richmond and Gordon. The window is designed by Mr. C. E. Kempe.

THE ASSOCIATION OF MUNICIPAL AND COUNTY ENGINEERS.

A MEETING of members of the Association of Municipal and County Engineers was held in the Council Chamber of the District Offices at Market Harborough, on Saturday, May 13. Mr. A. T. Davis, C.E., County Surveyor of Shropshire, President, occupied the chair, and among those present were Messrs. W. H. Harpur (Cardiff), J. Lobley (Hanley), A. W. Greatorex (West Bromwich), J. S. Pickering (Cheltenham), H. Richardson (Handsworth), F. C. Cook (Nuneaton), J. P. Norrington (London), G. Green (Wolverhampton), E. J. Silcox (Leeds), Norman Scorgie (Hackney), T. W. A. Hayward (Battersea), and others.

Mr. J. L. Douglass, Chairman of the District Council, welcomed the members of the Association to Market Harborough.

The President acknowledged the welcome which the Association had received, and remarked that this was the second occasion the Association had visited the town.

Cattle Market, Harborough.

Mr. G. Coates read a paper on "The New Cattle Market" at Harborough. He said that previous to the building of the new market, in 1903, the markets were held in the streets of the town from time immemorial; and, until a recent date, what was now known as "The Square" was called the "Sheep Market," because there were penned sheep, pigs, and calves. The high street was used as a pitch for cattle. The condition of Market Harborough in the past on a market-day might be imagined, and more especially on a fair day, when perhaps upwards of 2,000 beasts would be in possession. In 1900 negotiations were entered into with Lord Barnard, the present Lord of the Manor, and the market rights were purchased for 2,455*l.*, and twelve acres of grass land acquired in a central and accessible position, at the very moderate price of under 300*l.* per acre, or a total of 5,967*l.* for the market rights and the land. The six acres of land nearest the town were laid out for the market proper, the remaining six acres being used for open lairages for the stock attending the market. The work was let in five contracts and the total cost of works was 18,781*l.* 13s. 5d, The total outlay on the market, including land. purchase of rights, and works, was 25,950*l.* The market had been designed with a view to future extensions, fenced-in spaces being reserved for additional beast and sheep pens, the provision of which would not in any way disturb the existing roads or arrangements. With a view to the ultimate extinction of unsuitable private slaughter-houses in the town, the Council were building two new slaughter-houses on the market lairages, as a first instalment. The rent of each was 20*l.* per annum. It was generally considered that Market Harborough had great advantages to offer to manufacturers establishing works there. The railway accommodation was excellent; land could be had at a low price; the local rates were very small compared with other towns, and the working classes were well housed. As a residential town, or hunting centre, it could boast of an excellent water supply and drainage; a death-rate much below the average; picturesque building sites; ample facilities for sport. The Council had this year completed a quarter of a century's local self-government. The population was 8,700; the rateable value £55,929; death-rate (per 1,000) 9·41. Since the last meeting of the Association at Market Harborough, in 1897, the Urban Council had acquired the gas works (Engineer and Manager, Mr. A. T. Harris) at a cost of 49,000*l.*, including reconstruction and new offices. Also a recreation ground, comprising sixteen acres, cost 3,100*l.* The Council had taken over the care of the two cemeteries of the district. The Urban District rates were 3s. 6d. in the pound per annum.

The President said he considered the new cattle market, which he had been over, reflected great credit on Mr. Coates and the town. He thought blue bricks would have been better for the paving than random granite setts and tar paving, as they were cheaper and more easily cleansed.

Mr. T. W. A. Hayward (Battersea) congratulated Market Harborough on the admirable way in which it had dealt with the cattle market. Having previously been surveyor in a country market town, where they had no cattle market, but held the sales in the streets, he could speak of the great nuisance of such a practice to shopkeepers and residents.

Mr. A. W. Greatorex (West Bromwich) congratulated the District Council on the progressive policy it had pursued during the twenty-five years the town had been under its government, owning as it did the gas and waterworks and markets, and completed a successful sewerage scheme.

Mr. Smith (Kettering) approved the adoption of a separate drainage scheme for the market on other than sale days, and when the place was being cleansed, as the water for six acres of paved surface in the case of thunderstorms was a great consideration at a small sewage works.

Mr. Dickinson (Birmingham) said he was surveyor for five or six years to a market town, where cattle came and stood about the streets, and he felt that this market must be a great boon to the town.

Mr. Coates, in reply, said they did not like blue bricks, which they did not consider in unison with a rural district.

River Conservancy.

Mr. G. Coates, Assoc.M.Inst.C.E., F.S.I., read a paper on river conservancy. He said it occurred to him that the time was more than ripe for the Legislature to move in the direction of the establishment of River Boards, having control of each river from its source to its outfall, as contemplated by the abandoned Bills of a quarter of a century ago. Ought such a condition of things to be tolerated as described in a daily paper, not so long ago, of a certain town? "Over 2 ft. of water is in the lower rooms of the houses, and many families, who have not left, have taken refuge in bedrooms. Cocks and hens are seen roosting and starving in the trees, but in some cases they and the pigs share the cottages with the inmates. Punts are in use in the public streets." The Royal Commission on Sewage Disposal, appointed in 1898, had reported in favour of the setting up of River Boards, with the watershed as the administrative area, having control of the streams in respect to pollution, water-supplies, and fisheries. If, therefore, Parliament would pass a Bill based on the conclusion arrived at, after hearing expert evidence by its Select Committee and its Royal Commissioners, the country would greatly benefit. If the whole condition of the watercourses of England was looked at broadly it was difficult to believe how people had tolerated their neglect so long. We had not so treated the question in Egypt. No doubt, if there occurred several consecutive years of excessive rainfall, or, on the other hand, of drought, the question would be forced into practical politics again; but the law of averages worked in favour of letting things alone. There were two reasons why authorities had not hitherto been established for the management and control of our rivers and streams: (1) The unwillingness of legislators to interfere with private property, vested interests, or prescriptive rights. (2) The difficulty of propounding an equitable rating scheme to provide the necessary funds for the administration by the River Authority. With regard to the first objection, the riparian owners having failed to remedy the existing evils with their present powers, and a case having been made out for action, Parliament should intervene in the interests of the community at large. Respecting the second objection, it should not be beyond the wisdom of Parliament to devise an equitable rating basis for one more body, having regard to the number of administrative bodies already established. The average rainfall for the forty-five years ending in 1902 (as given in "British Rainfall") was approximately 25 in., whereas the exceptional floods of 1903 were caused by a rainfall of 36 in. One of the duties of a River Board would be to gather reliable data as to the rainfall in the watershed under control, together with the known flood-heights, the strata of the districts, etc., upon which the remedial works could be based. Observation and records of various important matters would, in the course of a very few years, lead to a thorough knowledge of the eccentricities of the streams. It should not be impossible in most districts to know at different degrees of saturation of the subsoil just how much rain, falling in a given time under present conditions, would cause a flood, how long the flood would be in rising, and its duration. If one could take a certain river and measure the distance, as the crow flies, from its source to the sea, and divide by the total fall, they would not get its true hydraulic gradient, as its meandering and twisting and doubling would make the real distance much greater. The sharper the gradient the less sectional area of waterway was required to pass off a given amount of water; it was evident, therefore, that the straighter the channel, the sectional area being the same, the quicker would the water get to the sea. The channels should therefore, where practicable, be straightened, and the loops cut through, as this might save widening. Where the channels could not be straightened or widened they might be embanked or deepened. There were bridges which would be sufficient for passing on flood-water were the side arches kept clear of sediment and obstruction; but, on the other hand, there were other bridges which are great obstructions themselves, with insufficient waterway either in width or head-room, or both. It was to be hoped, however, that no picturesque old bridges would be pulled down unless absolutely necessary, as it would be possible in many cases to relieve the pressure by means of additional flood arches and wallows without perpetrating acts of vandalism. The occurrence of calamitous floods must never make them forget that there were such evils as droughts, when vegetation was burnt up for lack of moisture, and farmers and graziers would give almost anything for water. Here, then, was scope for the attention and foresight of a River Board. To the extent to which it was possible, means should be devised for holding up the level of the available water in the rivers and tributaries for the irrigation of land lying below that level. This could be accomplished by the installation of movable gates, placed either in the main stream or in a sufficient tributary stream, and the water conveyed from the upper side of the weir, by a side channel or a system of pipes, to the land below. In some localities it would be quite feasible to impound flood-waters in storage reservoirs at sufficient elevation to command certain midlands and lowlands. It was generally conceded that the storage of flood-water had an infinitesimal effect in the mitigation of floods, the quantity of water which it was possible to hold up being so very small in comparison with the water rolling down the stream. But whilst this fact was true, it was most desirable to store water for purposes of water supply, municipal purposes, and irrigation. In many districts the acquisition of land for the construction of impounding reservoirs would not be a very serious affair, with the low prices of land obtaining to-day. There seemed no reason why each River Board should not allot sources of water supply for every town and village within their watershed. This would prevent the large towns, with the longest purses, inequitably securing what ought really to be the supply of some smaller place. On the other hand, it would lead to the economising of the available supplies by preventing districts from monopolising far more gathering ground than was reasonable for future use. In England it must always be remembered that the watersheds were constant, whilst the population was increasing; so that the conservation of water was really a question of national importance. The Board of Agriculture had recently recommended to water authorities the afforestation of catchment areas. This would tend to keep the water supply purer, and increase infiltration by arresting evaporation. Whilst the owners of existing water-mills would, of course, be privileged to retain their water rights—always provided those rights were not detrimental to the public weal, in which case their suppression would be subject to compensation—the River Board would in certain cases be able to lease water power to landowners and others where the levels and conditions were possible. A survey and consideration of the whole watershed would reveal, in many localities, possibilities for the utilisation of water power at present overlooked, or impossible to utilise under the present limited jurisdiction. The control of a watershed by a River Board would lead to the employment of a considerable amount of labour in the country. Not that labour would be employed for the sole purpose of giving relief to the unemployed, for that might be unremunerative, whereas the object of the Board would be to execute work calculated to benefit property, and the comfort; health, and prosperity of the community.

The President remarked that until we had River Boards he was afraid our rivers, instead of being brought back to their original state of clear and pellucid streams, would continue to be polluted. A general adoption of the policy pursued by the Yorkshire Rivers Board would be for the good of the country.

Mr. E. J. Silcock (Leeds) said that coming from the West Riding of Yorkshire, where the Rivers Board was somewhat active, he could tell them that they had done a considerable amount of good in keeping pollution out of the rivers in the West Riding. But they had not sufficient powers, and were in the unfortunate position of not being able to get further powers. They proposed to go to Parliament this present session, and an action was commenced against them by one of the contributory bodies to prevent them applying their funds for the purpose of obtaining powers. They were thus in the position that they had funds to spend but could not spend them in getting further powers. That crippled them to some extent. There would have to be legislation introduced to invest them with considerably more powers than they had at present.

Mr. J. S. Pickering (Cheltenham) said one great hardship in approaching Parliament was the enormous expense involved in getting Bills through. Although practically unopposed, the Nuneaton Bill cost 1,200*l*. This money had not gone into the pockets of the engineer who had done the bulk of the work, but had been taken by the lawyers. He spoke strongly upon this, because he thought it was a scandalous thing that any town should be put to such enormous expense in carrying out a necessary public work.

Mr. Smith (Kettering) considered that with schemes of public water supply the local authority ought not to have to give back one-third of the water as compensation. Something smaller than one-third should be the quantity given to a river or stream, and if the riparian owners wanted more they should pay for that from which they benefited so much.

Mr. Cook (Nuneaton) considered that the cost of obtaining powers for the improvement of rivers prevented a good deal of necessary work being carried out by the smaller towns all over the country.

The President suggested that with the formation of River Boards the boundaries should coincide with the boundaries of the watershed area.

The members then visited the markets, after which Mr. Coates entertained them to luncheon in the Settling-room of the Market buildings. In the afternoon the members visited the source of the water supply at Kilworth.

THE ROYAL SANITARY INSTITUTE.

THE annual dinner of the Royal Sanitary Institute was held on Friday, last week, in the Prince's Restaurant, Piccadilly. His Grace the Duke of Northumberland, K.G., President of the Institute, presided, and there were present the Right Hon. Earl Egerton of Tatton, Dr. Percival, Bishop of Hereford, Colonel J. Lane Notter, R.A.M.C. (Chairman of the Council of the Institute), Sir R. Douglas Powell, Bart. (President of the Royal College of Physicians), Sir Francis Sharp Powell, Bart., Sir Aston Webb, R.A., Sir Alexander Binnie, Sir Arthur W. Rücker, LL.D., Sir W. J. Collins, D.L., Sir Henry C. Burdett, K.C.B., Sir G. H. Philipson, LL.D., Sir Shirley F. Murphy, Director-General H. Mackay-Ellis, Professor H. Robinson, Messrs. T. W. Aldwinckle, Andrew Clark, D.Sc., H. P. Adams, T. W. Cutler, H. H. Collins, A. J. Davis, E. T. Hall, A. H. Reid, H. D. Searles Wood, J. Slater, J. Osborne Smith, A. C. Scovell, J.P., J. F. J. Sykes, A. Saxon Snell, I. Young, E. White Wallis, Secretary, and others.

The loyal toasts having been proposed by the Chairman (who remarked on the honour the King had conferred on the Institute in allowing them to assume the title of "Royal" and on the interest His Majesty had always taken in sanitary matters), Sir Alexander Binnie proposed "The Navy, Army, and Reserve Forces," which was acknowledged by Director-General H. Mackay-Ellis, of the Royal Navy Medical Department.

Sir William J. Collins then proposed "The Houses of Paliament," coupled with the names of Dr. Percival, Bishop of Hereford, and Sir Francis Sharp Powell, Bart. Dr. Percival expressed his gratitude to the Institute for the work it was doing. In regard to the housing question, the great landowners had set the best possible example—and one which he would be glad to see more generally followed—in the matter of the provision of cottage homes for working people. But wherever he went in the villages of his diocese he found that one of their

greatest needs was for more healthy cottage homes. Many of our country children suffered in health, physique, and morals from the defects of their homes, and he was glad to know that the Institute was doing a great deal to cure the evil. He asked one of his city clergy recently if he could say how many homes he had in his parish which he would describe as unfit for the decent bringing-up of Christian children, and the reply was that he had at least 120 such homes out of 4,000. There were scores of such parishes stretched up and down our country, and he thought that we should take care that the occupants should grow up under better conditions.

Sir F. Sharp Powell, Bart., said he thought that a great part of the duty of Parliament in regard to sanitary legislation had been done for the time, and it now rested with the local authorities throughout the country to exercise their large powers with discretion and firmness and with wisdom. There were some cases which he knew of where these powers had been exercised in such a vexatious way as to have thrown back the cause; he hoped that with gentleness, wisdom, and discretion, and knowledge that these powers might be put into operation in such a manner as to prevent a reaction—an evil which he feared—and that there would be a continual progress and advance towards that most perfect condition to which he hoped we should all arrive. Many sanitary reforms would have to be made, and he would like to see placed on the statute book the consolidation of our sanitary laws; they were far too antiquated and complicated. It would be a great benefit to this country when public opinion became so active as to force Parliament to take up this question. The present Legislature were not insensible to duty in this matter, and it was a want of opportunity which prevented a Bill being introduced to consolidate the public health law of the country.

The President, in proposing the toast of "The Royal Sanitary Institute," said that the Institute had been in active operation about thirty years, and they had done their best to meet the requirements of the age and to perform the work they were originally formed to do. The Institute consisted of over 3,200 members, and it had an income of something like 8,000*l.* a year. In the course of the last year 466 meetings of various kinds in connexion with the Institute had been held, and they had been attended by over 37,000 people. From that it would be seen that the Institute was doing good work and that they must be making an impression on the country; but one result of their success was that they required better accommodation. The Institute had a valuable museum and library, they did much in the way of lecturing and training in sanitary science and in examining those who would submit themselves to examination, and the time had come when it was necessary to have more room. A scheme had been prepared, and it was proposed to secure an excellent site in an important part of London where it would be possible to erect a building which would meet with the needs of the Institute. They had about 10,000*l.* towards this object, but 15,000*l.* more was required before they could realise their hopes, and, though that was a large amount to raise, he could not help thinking that if each one of them did their best to meet the demands, and if they appealed to those throughout the country who appreciated the work the Institute was doing, it would not be impossible to reach that sum and so put the Institute in a position which would be commensurate with its great aims and its great achievements. He presumed that the duty they set before themselves by the various agencies which they put in force was to maintain a high standard of sanitary science throughout the country, both in theory and in practice. He hoped they would always keep the object of the best before them and yet look at matters from a practical point of view and secure for the people the sanitary conditions which were possible rather than by aiming too high to delay improvement which could otherwise be achieved. No one who knew anything about the subject could fail to agree with what the Bishop of Hereford said as to unfit dwellings. The one great difficulty in the way of improvement was the expense which building under many by-laws necessarily entails. These by-laws might be theoretically right, but practically it was almost impossible to carry them out with any due regard to business principles which more or less affected everyone—*i.e.*, that they must get a fair interest on outlay. No one could do a more benevolent act to the people of the country than to devise means by which cheap sanitary dwellings might be erected, and he hailed with great pleasure the prospect of the forthcoming exhibition of cheap houses. There were many who could by their criticism and advice in the matter do much good, valuable work which would be of lasting benefit to the nation.

Colonel J. Lane Notter, the Chairman of Council, in reply, said that the aim of the Institute had been to carry out that great duty which devolved on them as members of the State to render, in the words of a great master of hygiene, growth more perfect, decay less rapid, life more vigorous, and death more remote. This entailed great labour and time, which was given ungrudgingly by members of the Council, all of whom were men busily engaged in their various professions. The Institute had contributed largely to the education of inspectors of sanitary work and had laid the foundation of their knowledge by the method of teaching and by the examinations. The work of the Institute was not confined to the United Kingdom; it embraced British dominions beyond the sea. It was not proposed to adopt the new premises scheme outlined by the President, or any other scheme, without taking the members into the confidence of the Council, and as soon as possible a meeting would be called for the purpose of considering the matter. Much would depend on the present appeal for funds and how far they would be justified in adopting the scheme or any other. The scheme had so far appealed to all classes of members and a large number of subscriptions had been received.

Sir Aston Webb then proposed the toast of "Our Guests." It had been said that, though we live longer, we do not live stronger, and we do not live better. It was by means of the work of some of their guests that night that they hoped to find out the means by which we may live longer, stronger, and better.

Sir R. Douglas Powell, Bart., replied, and the proceedings terminated.

THE ARCHITECTURAL ASSOCIATION SUMMER VISITS:

I.—Consumption Hospital, Northwood.

The summer visits of the Architectural Association began on Saturday, May 13, when a large number of members assembled at Northwood, Middlesex, to inspect a new hospital for consumptives, and the success of a very interesting visit was enhanced by the presence of the architect, whose information was much valued.

This institution forms the country branch of the Mount Vernon Hospital, Hampstead, for diseases of the chest, and provides beds for fifty men and fifty women, accommodation for an administrative and quarters for a proportionate medical, nursing, and domestic staff. The remaining departments comprise a large dining-room for patients, kitchen and offices, stables, laundry, electric lighting plant, water softening and pumping station. The various parts are disposed in eight separate buildings, some of which are made intercommunicative by means of closed corridors.

From a limited competition for designs the plans of Mr. Frederick Wheeler were selected, and the complete work has been carried out under his supervision by Messrs. Holland & Hannen. The whole of the expense is borne by an anonymous donor, whose liberality is evident in the lavish and generous nature of the scheme.

The 100 patients are housed in wards arranged in two wings set obliquely with the main building. Here also is a central block containing medical officer, matron, consulting-room, servants' dormitories, and water tower, while each of the wings terminates in a very large winter garden. A wide terrace runs throughout the entire length of the main front and a balcony of similar length is built for use on the upper floor.

The general principle of the institution is that of a hospital rather than a sanatorium. Some of the beds in the wards are set in distant corners and most of them are placed away from the windows, a proceeding which is at variance with current experience in this subtle treatment. A cubic space of 1,400 ft. has been secured to each patient, but such a provision appears to be unnecessary where everything should be open and free to the fine air which this charming locality possesses. The same wasteful accommodation is found in the dining-hall, kitchen and offices, laundry, and electric light plant, etc., where provision is made for a place very much larger than that under notice.

The buildings are very satisfactorily designed with an XVIIIth century treatment, and an excellent colour combination of materials is seen in the fronts. Grey Luton bricks, relieved by a judicious mixture of reds, constitutes the general walling, which is finished at the eaves level with a painted deal cornice. Long, simple roofs of dull Broseley tiles in pleasing colour impart dignity to the design, whereof the central tower and entrance receive importance by the introduction of Doulting stone.

The interior is very much in character with what is usually found in hospitals, but some interesting departures are made in grates and central warming stoves.

In marked contrast with the restraint seen in the architecture of the hospital, a chapel seating 200 people has been designed in a somewhat crude manner and placed near the eastern extremity of the main building. Apart from the long, sloping stone buttresses and large unbroken masses of flint facing, the arrangement is suited to ordinary demands and is quite unfit, in our opinion, for the use of consumptive patients. There is ample room for religious services for the patients of various denominations in the large dining hall where the wall surfaces and the ventilation are more in the nature of what is required for consumptives. The prominence of this chapel is certainly not a cheering element in the beautiful surroundings of the site and the 10,000*l.* thus expended would have been more wisely used if applied to the direct purpose of the institution—the saving of life.

THE LONDON COUNTY COUNCIL.

The first meeting of the London County Council after the Easter recess was held on Tuesday in the County Hall, Spring-gardens, Mr. E. A. Cornwall, Chairman, presiding.

Loans.—On the recommendation of the Finance Committee, it was agreed to lend Camberwell Borough Council 5,000*l.* for erecting working-class dwellings, 11,350*l.* for site and erection of baths, and 5,800*l.* for a footbridge; Finsbury Borough Council 2,324*l.* for street improvements and paving works; Hammersmith Borough Council 1,800*l.* for construction of underground conveniences and 15,590*l.* for poor-law purposes; Lambeth Guardians 4,800*l.* for poor-law purposes; Lewisham Borough Council 1,248*l.* for street improvements; Poplar Borough Council 30,013*l.* for paving works and 1,350*l.* for additional exit at Bow Baths; and Woolwich Borough Council 6,500*l.* for electric lighting purposes. Sanction was also given to Chelsea Borough Council to the borrowing of 16,500*l.* for street improvement.

Schools.—On the recommendation of the Education Committee, it was agreed to spend 3,447*l.* on the erection of a school for mentally defective boys at Beaufort House, Fulham, and to entrust the work to Messrs. Stimpson & Co.

Tramways.—The Highways Committee submitted their report recommending that the Council should purchase for 121,000*l.* the remaining interests of the North Metropolitan Tramways Company in the Council's (Northern) Tramways. It is desired to determine the lease at the earliest possible time, in order to expedite the electrification of the lines. The committee also recommended that the rolling stock, horses, plant, and machinery should be purchased for 315,000*l.*

Mr. Allen Baker (chairman of the committee), in moving the adoption of the recommendations, claimed that the financial success of the electrified lines in South London fully justified the Council in their proposal to determine by agreement the lease with the North Metropolitan Company, so that the people of North London might have the benefit of electric tramways four years earlier than would otherwise be the case. The electric tramways in South London had been an immense boon to the people. They were becoming increasingly popular, and were doing much to solve the housing question in the south. They had every reason to believe that similar results would follow the electrification of the northern lines.

Mr. Harris moved as an amendment that it was inexpedient to enter into the scheme, involving an expenditure of 6,000,000*l.* on the electrification of the northern lines on the conduit system, until the Royal Commission had reported, when it was expected that the needs of London and the precise means by which they could most conveniently and economically be met were likely to be ascertained.

Sir Melvill Beachcroft formally seconded the amendment.

After considerable further discussion the amendment was, upon a division, rejected by seventy-four votes to twenty-one.

The recommendations of the committee were then adopted by a large majority.

Unopposed business was transacted and the Council adjourned at 8.30 p.m.

APPLICATIONS UNDER THE LONDON BUILDING ACT, 1894.

THE London County Council at their meeting on Tuesday dealt with the following applications under the London Building Act, 1894. The names of applicants are given between parentheses :—

Lines of Frontage and Projections.

Kensington, South.—Projecting bay-windows and a projecting hood in front of a block of buildings on the site of Nos. 2 and 4, Charles-street, Kensington (Mr. A. B. Rumball).—Consent.

Hampstead.—Six buildings upon a site abutting upon the south-western side of Finchley-road and northern side of Lymington-road, Hampstead (Mr. W. A. Rabson for Mr. W. F. Cave).—Consent.

Battersea.—An addition to the Gonville and Caius College Mission buildings on the north-western side of Harroway-road, Battersea (Messrs. W. & C. A. Bassett-Smith for Rev. A. Shillito).—Consent.

Clapham.—Iron and glass porches to flats on the west side of Bedford-road, Clapham, between Aristotle-road and Kendoa-road (Messrs. Ayre & Kingcome).—Consent.

Hammersmith.—The retention of open-letter signs at No. 131, King-street and No. 130, Goldhawk-road, Hammersmith (Mr. W. H. Duffield for Mr. D. Greig).—Consent.

Islington, North.—The retention of a wooden porch at No. 82, Archway-road, Highgate (Mr. A. Goodchild for Mr. J. B. Evans).—Consent.

Kensington, South.—One-story shops at Nos. 164 to 172 (even numbers only) inclusive, Earls Court-road, Kensington, to abut also upon Penywern-road (Mr. W. G. Hunt for Messrs. Jones Brothers).—Consent.

Lewisham.—Iron and glass porches in front of fourteen houses on the south-west side of Chudleigh-road, Brockley (Messrs. J. W. Heath & Sons).—Consent.

Lewisham.—Houses with bay-windows on a site on the north side of Belmont-hill, Lee, between "Moray House" and Belmont-road (Mr. W. P. Neal for Messrs. H. & G. Taylor).—Consent.

St. George, Hanover-square.—Fixing of two arc lamps under the iron and glass shelter at Hatchett's Restaurant, Piccadilly (Messrs. Marples, Leach, & Co.).—Consent.

St. George, Hanover-square.—Enclosures to the sides of a porch at No. 18, Grosvenor-street, St. George, Hanover-square (Messrs. G. Trollope & Sons and Colls & Sons, Ltd., for Mrs. McCalmont).—Consent.

St. George, Hanover-square.—A projecting sign at No. 157A, New Bond-street, St. George, Hanover-square (Mr. I. C. Goodison for Messrs. I. & P. Mendoza).—Consent.

Wandsworth.—A building on a site abutting upon the western side of Putney-hill, and southern side of Upper Richmond-road, Wandsworth (The Metropolitan Borough of Wandsworth).—Consent.

Walworth.—A building on the site of No. 43, 45, and 47, Villa-street, Walworth (Messrs. E. Runtz & Ford for the Hon. Maude Stanley).—Consent.

Strand.—A projecting sign at No. 11, Wardour-street, St. James', Westminster (Mr. J. Richardson for Messrs. Sam Isaacs & Co., Ltd.).—Refused.

Wandsworth.—A one-story addition adjoining No. 54, High-street, Tooting (Mr. S. S. Dottridge for Mr. E. Dottridge).—Refused.

Width of Way.

Woolwich.—Four cottages on the west side of Red Lion-lane, Woolwich, northward of No. 1 (Mr. J. Rowland for Mr. W. Heffer).—Consent.

Rotherhithe.—That the application of Messrs. Barlow, Roberts, & Thompson for an extension of the periods within which the erection of five warehouses upon a site abutting on the southern approach to the Tower-bridge, northern side of Queen Elizabeth-street and western side of Horslydown-lane, Rotherhithe, was required to be commenced and completed, be granted.—Consent.

Width of Way and Lines of Frontage.

Marylebone, East.—The retention of an iron and glass covered way in front of No. 1, Titchfield-road, Regent's-park (Mrs. L. Charles).—Consent.

Space at Rear.

Battersea.—A modification of the provisions of section 41 with regard to open spaces about buildings, so far as relates to the proposed erection of an addition to the Gonville and Caius College Mission buildings on the north-western side of Harroway-road, Battersea, with an irregular open space at the rear (Messrs. W. & C. A. Bassett-Smith for Rev. A. Shillito).—Consent.

Whitechapel.—A modification of the provisions of section 41 of the Act with regard to open spaces about buildings, so far as relates to the proposed erection of an addition at the rear of No. 108, Commercial-street, Spitalfields (Messrs. Hovenden & Barber for Mr. E. Wakefield).—Consent.

Battersea.—A modification of the provisions of section 41 with regard to open spaces about buildings, so far as relates to the proposed erection of buildings on a site abutting upon the north side of York-road and east side of Lombard-road, Battersea (Mr. E. Cannell for Mr. F. Priddis).—Refused.

Formation of Streets.

Lewisham.—That an order be issued to Mr. H. Winstanley refusing to sanction the formation or laying out of new streets for carriage traffic upon the Ravensbourne Park estate, Catford, to lead out of the west side of Ravensbourne Park-road (the Governors of Sir John Cass's Foundation).—Refused.

Formation of Streets and Erection of Buildings.

Hackney, Central.—That an order be issued to Messrs. Stones, Morris, & Stone sanctioning the erection of buildings on sites abutting upon the east and west sides of Priory-place, Well-street, Hackney, and the widening of a portion of Priory-place (Mr. C. Winkley).—Agreed.

Chelsea.—That an order be issued to Messrs. Bourchier, Burmester, & Galsworthy, sanctioning the formation or laying out of new streets for carriage traffic, the widening of existing streets, and in connexion therewith the erection of buildings upon the estate of the Cadogan and Hans-place Estate (No. 3), Ltd., on the south-eastern side of Fulham-road, and the south-eastern and north-western sides of Cadogan-street, Chelsea (the Cadogan and Hans-place Estate (No. 3), Ltd.).—Consent.

Lines of Frontage and Working-class Dwellings.

Norwood.—A block of working-class dwellings on a site on the western side of Brixton-hill, Norwood, northward of No. 176 (Mr. R. Robertson for the Housing of the Working Classes Committee of the Council).—Consent.

Means of Escape from Top of High Buildings.

Strand.—Means of escape in case of fire, proposed to be provided in pursuance of section 63 of the Act, on the sixth (top) stories of Nos. 169 to 173, Piccadilly (Mr. W. Woodward for Messrs. Jackson and Messrs. Peat).—Consent.

Strand.—Certain deviations from the drawings approved in respect of the means of escape in case of fire on the fifth and sixth stories of the staircase block and the fourth story, and galleries over, of the surgical ward block, Charing Cross Hospital (Mr. A. Saxon Snell).—Consent.

ARCHITECTURAL SOCIETIES.

MANCHESTER SOCIETY OF ARCHITECTS.—On May 2 this Society began its summer programme of visits, about thirty members going to the Church of the Christian Scientists, Victoria Park; Mr. Edgar Wood, architect. The entrance forecourt shows picturesque grouping of simple and unusual character, and the interior, when completed to double its present length, will be very satisfactory, the whole design showing considerable individuality and suitability to its purpose. Afterwards the members visited St. Chrysostom's Church to study the effects of the recent fire, finding very complete proofs of the unreliability of stone when exposed to heat and water. On Saturday, May 6, a visit was made to Leeds to see the new Roman Catholic Cathedral; Mr. J. H. Eastwood, architect. A considerable time was spent, under the guidance of the clerk of works, in thoroughly examining the building, and much of interest was found, both in detail and in general design. The party then divided, and utilised the little remaining time in making flying visits to Kirkstall Abbey, or to Mr. Bodley's fine church at Allerton.

BIRMINGHAM ARCHITECTURAL ASSOCIATION.—At the annual general meeting of the Birmingham Architectural Association, held at the Midland Hotel, the President in the chair, the result of the ballot for the election of officers was declared as follows:—President, Mr. Thomas Cooper; Vice-President, Mr. J. L. Ball; Members of Council, Messrs. H. T. Buckland, Arthur Harrison, William Henman, Alfred Hale, A. E. McKewan, E. L. Percival, and E. F. Reynolds; Hon. Treasurer, Mr. Edward Hale; Hon. Librarians, Messrs. J. A. Swan and E. H. Worsey; Hon. Secs., Messrs. Gerald McMichael and A. Dennis Thacker. The question of the annual excursion was discussed, and it was decided to go to Mont St. Michel at Whitsuntide.

Books.

Steam Pipes: Their Design and Construction. A Treatise of the Principles of Steam Conveyance and Means and Materials Employed in Practice, to secure Economy, Efficiency, and Safety. By WM. H. BOOTH, M.Am.Soc.C.E., late of the Manchester Steam Users' Association, the New South Wales Government Railway Department, etc. London: Archibald Constable & Co., Ltd. 1905.

IT is announced in the Preface that the intention of this treatise is to bring together such information with regard to steam pipes as will be of assistance to the engineer who has to face problems arising out of the conveyance of steam from point to point. Although the author has evidently set before him as a primary consideration the needs of those employing pipes for the supply of steam-engines, his book may prove to be of service as a guide to the design of distribution systems for other purposes. After a few introductory remarks, "The Flow of Steam" is discussed in Chapter II., wherein Mr. Booth gives a short series of tables with explanatory directions for the ready selection of pipes suitable for the delivery of any desired weight of steam per minute, or hour. A pipe equalisation table is contained in the same chapter, but its value is somewhat impaired by the fact that it has been reproduced from an American source, and consequently does not apply with accuracy to British standards. It certainly is a pity that the author did not take the trouble to prepare a table suited to the exact requirements of his readers.

Chapter III. is devoted to "Materials," the most commendable thing about it being a collection of notes as to the relative merits of cast-iron, wrought-iron, steel, and copper pipes. We fully agree with the recommendation that cast-iron should not be used to pressures of more than 100 lb. per sq. in. Lap-welded, solid drawn, and riveted steel pipes can now be obtained so readily and at such reasonable prices that there is really no excuse for continuing to employ cast-iron pipes and fittings except for low pressures. The author gives a further note of warning when referring to copper. Pipes of this material are flexible because they are weak; when solid drawn they are liable to longitudinal splits, and when brazed the metal may be rendered brittle if the air supply to the brazing hearth has been insufficient. Moreover, brazing becomes rotten if the pipes are used for the conveyance of superheated steam. After pointing out that in Admiralty practice copper pipes are now wound with steel wire as a precaution against ripping, the author advises engineers to avoid copper pipes for steam, and very properly characterises the steel pipe as the most suitable in every way for high pressure and superheated steam. Three or four tables and some explanatory matter in this chapter are now rendered useless by the publication of the report of the Engineering Standards Committee on "British Standard Pipe Flanges," which appeared just as the present work was going to press. Knowing this report to be due, the author would have done well to omit the matter altogether, and he certainly need not have given an abridged list of American wrought-iron pipes, to the exclusion of British dimensions. A paragraph entitled "Flexible Metallic Pipes" serves a useful purpose by directing the attention of readers to this very convenient form of conduit. By some oversight, however, a second reference to flexible metallic tubing has been printed in the middle of a paragraph dealing with wrought-iron tubing. This is not the only slip in Chapter III., which is very carelessly put together, and requires re-arrangement throughout. Some useful forms of expansion bends, joints, and couplings are illustrated in the succeeding chapter, and after this come particulars relative to the "Strength of Pipes," "Anti-Priming Pipes and Outlet Valves," "Pipe Joints," and "Pipe Supports."

Chapters IX. and X. have attractive titles, but both of them are too short. The former

deals with the "Erection of Pipes," and from it one or two serviceable hints may be gathered as to the setting out of pipes in a power-house, the addition of branch lines with a minimum amount of stoppage, and the bending of iron, steel, and copper pipes. The latter is devoted principally to the arrangement of pipes in a modern power-station, and although written in very general terms may prove suggestive to those who may be called upon to lay down steam plants comprising a range of several boilers and engines.

Chapter XI., on "Valves," is largely occupied by minute particulars of the valves made by one firm whose name we do not choose to mention, and if we did it would probably not be recognised by the bulk of our readers. The details given are of little use except by way of advertisement, as they are not generally applicable, and, moreover, some of them are now superseded by the recently published dimensions of British standard flanges. The latter criticism applies to the chapter on "Junction Pieces and Flanges," in which the author gives various flange dimensions, and also drags in tables of American origin. A few particulars of separators, exhaust heads, and atmospheric valves will be found a little later, but the reader could learn far more as to these from one or two good trade catalogues. For some incomprehensible reason the author has considered "Pipe Coverings" under the inappropriate heading of "Superheated Steam." The chapter with the last-mentioned title only contains thirty-five lines on the subject which it professes to discuss, the remaining twenty pages being devoted entirely to pipe coverings. This is one more evidence of slovenliness on the part of a writer, one of whose objects in the present treatise is to inculcate precision and careful attention to points of detail. We have no fault to find with the discussion of pipe coverings, except that the author seems to know nothing of British practice, and has drawn all his facts from American sources. Chapter XVI., entitled "Weights of Pipe," does not contain much more than a series of tables giving the dimensions of pipe bends and flanges, some copied from the list of a specified maker, and others from an undefined source. Two pages at the commencement on the weights of pipe give a feeble justification for the title selected. The work concludes with a short mention of "The Kinetic Theory of Gases." We are told that "the theory is certainly an aid in the comprehension of the behaviour of flowing steam." This being so, we wonder why the author has not thought it worth while to explain to his readers how the theory is to be applied. This concluding chapter seems to have been entirely an afterthought, for the subject-matter properly belongs to Chapter II., which, as before mentioned, deals with "The Flow of Steam."

While not deficient in good points, this book is distinctly disappointing, and cannot be recommended as one adequately, or even reasonably, fulfilling the object announced in the Preface. We do not doubt the capacity of the author to write a really valuable treatise on the subject chosen, and regret that he has not taken the trouble to do so.

An Epitome of the Law Relating to Easements. By T. T. BLYTHE, Barrister at Law. London: Sweet & Maxwell. 1905.

THIS little volume, which forms one of the "students' series," is stated in the preface to have been written with the object of enabling students to attain an elementary knowledge of the law relating to easements, and appears to have been well conceived to attain this end. The legal propositions are set out in large type at the head of short paragraphs, and are well supported by a reference to the decided cases upon which they are founded, and the index seems more copious than that supplied with some books for students. The abbreviation of the official references to some of the reports in the Law Reports is, however, perhaps to be regretted since an accurate knowledge of such references forms part of the education of the student, and even a small deviation is to be deprecated. The cases seem to be well brought up to date, as we find the latest case on the law of light, Mellor *v.* Gordon, decided on January 20 of this year, recorded. Dealing with the remedies for interference with easements, the author raises the question whether the dicta expressed by the House of Lords in the case of Colls *v.* Home and Colonial Stores as to the preference to be given to damages in place of injunctions in cases of obstruction to light may affect the practice in relation to other easements, but such a doubt appears to be unnecessary, since in the case of most easements, such, for instance, as rights of way, an injunction remains the only effective remedy to protect the right. This criticism is, however, rather academic, since this subject is only dealt with very shortly in these pages, which, in a very readable form, appear to supply the student with a useful knowledge of the law of easements.

The Sewage Problem: A Review of the Evidence Collected by the Royal Commission on Sewage Disposal. By ARTHUR J. MARTIN, A.M.Inst.C.E., M.R.San.I. London: The Sanitary Publishing Co. 1905.

ALL who have had occasion to study the evidence collected by an important Royal Commission know the trouble involved in tracing the evidence of the various witnesses on any particular part of the subject, and all persons interested in the problem of sewage disposal will be grateful to Mr. Martin for the useful digest of the large mass of evidence which has been collected by the Royal Commission, whose labours are now nearly at an end. The book is divided into nineteen chapters, of which the first is "Introductory"; two chapters deal with purification on land, another with chemical precipitation, eleven with bacterial processes and methods, and the last four chapters with "Filters *versus* Land," "Other Aspects of the Problem" (including standards of purity, sewage effluents in relation to disease, trade effluents, etc.), "Supplementary Reports on Land Treatment, etc.," and "The Outlook." The author has collected some of the most important evidence given by witnesses on each part of the subject, and has connected it by a running commentary and supplemented it in parts by information obtained from other sources. The book, which runs to 363 pages and contains an excellent index, can be heartily recommended to all who wish to obtain a concise and connected account of modern expert knowledge on all the most important aspects of the sewage problem.

Simple Methods of Testing Sewage Effluents. By GEORGE THUDICHUM, F.I.C. London: The Sanitary Publishing Co. 1904.

THIS little book of sixty pages has been written to aid borough engineers, surveyors, and managers of sewage works who have not received a chemical training, in making a number of physical and chemical tests which will enable them to ascertain in a general but sufficiently accurate way the condition of the effluents from sewage-works under their control. Nearly all the tests are of a simple character, and the book will be heartily welcomed by those for whom it has been written. The author writes clearly and as non-technically as the subject will permit. The chapter on "Standards" is particularly interesting; Mr. Thudichum objects to many of the standards which have been proposed, on the ground that they involve too much labour and expert chemical knowledge, and suggests a standard which should have for its main point the ratio between the oxidised nitrogen in the effluent and the albuminoid nitrogen in the original sewage. He does not fix this ratio in definite terms, but maintains that the albuminoid nitrogen in the original sewage will be less "by a considerable amount" than the oxidised nitrogen in any really satisfactory effluent from that sewage.

PRIMITIVE METHODIST MANSE, FERRYHILL.—A new Primitive Methodist manse has recently been opened at Ferryhill. The building was designed by Mr. Wilford Phillipson, of Spennymoor, of the firm of Messrs. Davidson & Phillipson, of Newcastle, and has been erected at a cost of 750*l*.

Correspondence.

"URGENT—*re* R.I.B.A. ELECTIONS."

SIR,—I have read with much interest the article and correspondence in *The Builder* on the subject of R.I.B.A. elections.

No doubt "Statutory Qualification," "Registration," "Anti-Registration," "The Institute," and "The Profession," are all delightful subjects for discussion, but after all, to an architect, *Architecture* is of infinitely more importance.

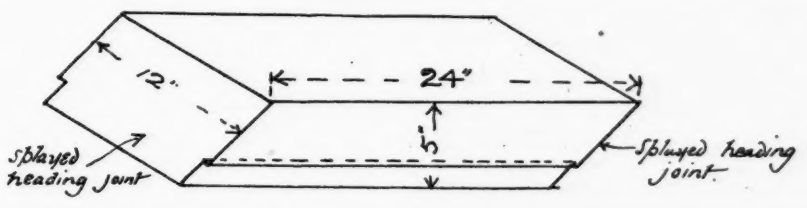
CLYDE YOUNG.

*** We cordially agree with Mr. Young.—ED.

CONCRETE PUGGING FOR FLOORS.

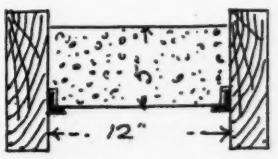
SIR,—We venture to draw the attention of architects and all connected with building operations to an item in the proposed Building Act Amendment Act that the London County Council are putting forward, and which we believe they hope to get passed during the present session of Parliament. As you are aware, the Amendment Act, as a whole, has been dropped, but part 8, which deals with further means of fire prevention, is still intended to be carried through.

The matter we wish to draw attention to is that of the pugging to form what is described as a fire-resisting floor. The draft enactment is that 5 in. of coke breeze concrete should be placed between joists, supported on a fillet 1 in. square, which fillet shall be placed in the centre of the depth of concrete, and so that which is, to our minds, the dangerous employment of wet concrete, is to be perpetuated; as far as we can learn, no alternative system is to be allowed, and there is no appeal from this under any circumstances, and so this system is to be looked upon as the last word of the teaching of present scientific knowledge. It is common knowledge that the placing of wet concrete pugging between joists is a dangerous practice, and has, in too many cases, led to the total destruction of a floor by "dry rot."



Surely there should be some alternative method that architects should be enabled to use? We have several substances in our mind, and methods of application, but hesitate to mention them lest it should be thought we are interested in some special method or material.

If concrete is to be employed, why not allow it to be used in cast slabs, which would be perfectly dry before being placed in situ? May we describe floors which we are at present constructing at a block of buildings erected at the corner of Darnley-road, Mare-street, Hackney, N.E.? In this case, we have



used 1-in. angle-irons, spiked to the side of joists with galvanised clout nails; the blocks are cast 2 ft. long, 5 in. thick, with splayed heading joints, and allowed to thoroughly dry before use; they are bedded in position, grouted in, flushed up, and pointed top and bottom (see diagrams).

It is to be noted that the clout nails are secured from the action of fire by the sides of the blocks, and that they cannot come out and allow the angle-iron to drop. We would venture to ask why any architect should be precluded from employing such a system as this. From tests made, it is as smokeproof and fireproof as concrete filling placed in wet, it is a more secure and substantial mode of construction than the deal fillet would afford, is of very little greater cost, and there is the minimum danger of "dry rot." Should any gentleman feel interested in the question, if he will call at the building named and give his card to the general foreman, he can see the floors as executed and judge for himself.

Does not this argue that other systems besides that to be universally applied have greater advantages, and the district surveyors or Tribunal of Appeal should have power to approve other methods?

We are of opinion that 4-in. thick cast slabs would be of ample thickness.

HOLMAN & GOODRHAM.

LONDON LAMP-POSTS.

SIR,—The time has again arrived when the lamp-posts are again being painted (anyhow in Westminster) with a nondescript kharki colour, which, in a short time, gets a dirty mud colour, and, before the following spring arrives, is almost black. This annual painting which the lamp-posts are subjected to is not only costly, but, if the lamp-post was originally of a fine design with any detail work on it, it is eventually entirely obliterated; all the intricacies being filled up with paint. I have seen lamp-posts with layers of paint on them amounting to a total thickness of over $\frac{1}{8}$ in.

Now that some attention is being given to the beautifying of London, I should like to suggest that the County Council in future have their lamp-posts and supporting-posts for electrical tramway conductors coated in a similar manner to the lamp-posts in Paris, which are beautiful in design and objects of beauty, being of a rich copper-bronze colour. The only attention they require is to be occasionally wiped with a grease composition.

If the County Council were to adopt such a system, it would not only add considerably to the beauty of London streets, as the lamp-posts and standards for the overhead electric tramway wires are such conspicuous objects in the street, but would eventually effect a great economy in upkeep and labour.

SHERARD COWPER-COLES.

*** Before considering the question of painting, it would be necessary to get lamp-posts of good design, which are hardly to be seen in London. The Westminster Council, to which our correspondent more particularly refers, have covered their district with so-called "ornamental" electric-light posts, which are merely vulgar and pretentious.—ED.

CHURCH FITTINGS.

SIR,—This letter will seem belated, but with 7,000 miles of land and sea between Pretoria and London, it cannot very well be otherwise.

I read with great interest the report, in your issues of February 18 and 25, of Mr. C. S. Spooner's paper on "Church Fittings." In his introductory remarks he divided Christian communities into two sections—those who make the Altar or Holy Table the most important feature of their churches, and those with whom the pulpit occupies this position. The first section, Mr. Spooner went on to say, embraces three communions—the Greek, the Roman, and the Anglican. All other denominations belong to the other section. I would like to take exception to this classification on behalf of the Scottish Church. I venture to think it should be included in the first section. Mr. Spooner, I think, has also forgotten the German (Evangelical) Church, with its altar raised high above the level of the nave, and bearing crucifix and rows of candles. In how many Anglican churches is the Holy Table given such prominence?

It is of the Scottish Church, however, that I wish to write. In the modern parish church in Scotland to-day the Holy Table occupies exactly the same position as it does in most English parish churches, *i.e.*, at the end of the chancel, raised on several steps, the pulpit being at the side of the chancel opening. This has not always been so, but neither has it always been the case in England. Where this arrangement does not obtain in Scotland, the least that can be said is that the Holy Table occupies quite as important a position as does the pulpit. This is more than can be said of every parish church in England. I can cite one instance to the contrary with which I am very familiar. It is not in some remote country village, unearthed by the Oxford movement, that it is to be found, but in the centre of the second city of England, Manchester. In the parish church of Christ Church, Salford, the pulpit stands, not to one side of the chancel opening, but exactly in front of the centre of it, completely blocking up the view of the Holy Table. So entirely does it do so that, although I often attended service there with a friend, a parishioner, I have never yet seen the Holy Table.

If Mr. Spooner will visit the Church of St. Columba, Pont-street, Belgravia, the architect of which is that eminent member of the profession, Mr. I. Macvicar Anderson, he will see a typical Scottish church of the present day. He will see the same arrangement as he has described in his paper—the pulpit at the side of the chancel opening, and the Holy Table raised on several steps above the level of the chancel floor, which again is raised several steps above that of the nave. The Table, which is without any covering—frontals are not usual in the Scottish Church, although they are to be found—is of oak. It is not at all unusual in Scotland for them to be of marble, alabaster, or other stone. To my mind the Holy Table in St. Columba's is much too short—it should be about double the length. In the Scottish Church much longer Tables are required than in the English Church. The double row of stalls which face each end of the Holy Table in St. Columba's are a mistake. They should be removed, and a row of stalls running along the end wall of the chancel, with, if required, a single row of stalls along the side walls, substituted.

What Mr. Spooner will see in St. Columba's will, I think, have the effect of enabling him to include the Scottish Church in the first section into which, in his interesting and instructive paper, he divided the Christian communions.

H. FRANKLIN MACGILLIVAY.

Pretoria, Transvaal.
April 22, 1905.

AN ACKNOWLEDGMENT.

SIR,—I shall be much obliged if you can spare me in your columns a little space to make the following acknowledgment.

In the Academy this year there is a small sketch design of mine for some suggested new buildings for the University of Liverpool, one façade of which my friend, Mr. Rickards, points out to me is reminiscent of part of the scheme he and Mr. Stokes prepared some time ago for the Holborn to the Strand street. I have looked up their drawing, which appeared in your paper on November 17, 1900, and find it is certainly so in some of its main features. I am consequently very anxious to at once acknowledge the plagiarism. I have a great admiration for Mr. Rickards' work, and I have no doubt, now I see his design again, that portions of it have been running in my mind and have influenced my little sketch. All architects will be able to realise how this can have occurred in perfectly good faith.

The façade in question is the shorter one with the large studio windows in it. It came about, naturally enough, from the repetition of the same features (which are all only the so-called motif of Palladio) in the longer and main façade, but that does not alter the result as far as Mr. Rickards' is concerned.

If my building is ever carried out or my design proceeded with in any way, you may be sure I shall remove all trace of the likeness, and if, in the end, it will bear comparison with any of Mr. Rickards' work, I shall be only too pleased.

C. H. REILLY.

University of Liverpool.

MAPLE FLOORING.

SIR,—Referring to Messrs. Damman & Co.'s remarks in your last issue, my experience is that contractors are not keen on maple flooring; for the reasons I set forth.

I am not aware that a plain unpolished surface of oak or teak will bear the rough usage which maple is subjected to in such buildings as factories, sorting offices, etc., where trolleys are used without rubber tyres and with heavy loads.

I maintain that vertical grain maple, of good quality, cannot be surpassed.

BUILDER'S ASSISTANT.

COMPETITION FOR CLOCK TOWER, ST. GEORGE'S-CIRCUS, S.E.

SIR,—The result of this competition was made known about the 19th of last month, and, up to the present, the place and date of the exhibition of drawings sent in has not been published as promised.

I think that, considering the large number of drawings sent in, the promoters of this competition should hold the exhibition without further delay. I enclose my card, and am

A COMPETITOR.

ELECTION OF FELLOWS OF THE INSTITUTE.

SIR,—I am instructed to forward you copies of the enclosed resolutions, passed at a meeting of local Associates of the Royal Institute.

FREDK. MUSTO.

Resolutions Passed at a Meeting of Associates: Leeds, May 15, 1905.

1. That this meeting of Associates views with much indignation the present large influx of members to the Royal Institute by direct election to the Fellowship, and in view of the facts (*a*) that many of the candidates are of suitable age to qualify for membership by the "special" examination provided for such cases; (*b*) that some of them have not been successful in the examinations, but are, nevertheless, supported by prominent members of the R.I.B.A. council, we protest against this as a lowering of the standard required for membership; as a most unfortunate blow to the cause of professional education they profess to encourage; and as a grave injustice to those who have qualified by examination for membership at much expenditure of both time and money.

2. That we urge upon the Associates in London and in all the allied societies to combine in opposing these numerous and unwarranted nominations by demanding a ballot as prescribed in by-law 9; and by all the regular means.

3. That copies of the above resolutions be sent to the R.I.B.A., to the allied societies, and to the leading professional journals.

(*Signed*).

W. G. SMITHSON. F. E. P. EDWARDS.
W. H. BEEVERS. A. RYSHWORTH HILL.
H. ASCOUGH CHAPMAN. CHARLES B. HOWDILL.
R. FIELDING FARRAR. JOSEPH J. WOOD.
ALBERT E. KIRK. FREDK. MUSTO.
HERBERT E. ILLINGWORTH. EDWARD L. GAUNT.

Leeds, May 17, 1905.

Illustrations.

SCULPTURE, CENTRAL LIBRARY, HAMMERSMITH.

THE sculptural decoration to the Central Library, Hammersmith, here illustrated, is the work of Mr. F. E. E. Schenck, the architect of the building being Mr. H. T. Hare.

The sculpture consists of two statues of Shakespeare and Milton in two niches in the centre of the building, and two long panels in relief, at a lower level.

The right-hand panel, the uppermost in our illustration, symbolises "Literature" and "Art"; the other panel represents "Industry" and "Science," the two figures being in each case separated by a shield in the centre.

The figures of Shakespeare and Milton are, we have ascertained since our plate was made, in the reverse position to that in which we have placed them, Shakespeare being on the right and Milton on the left; but we think the position in our plate is the one they ought to have had. One reads storied sculpture, as one reads a book, from left to right, and therefore the older (and greater) poet should more suitably have been placed on the left.

The sculpture is executed in Portland stone. The scale of the figures in the niches is 8 ft., and of those in the panels 6 ft. 6 in.

MUNICIPAL BUILDINGS, SOUTH SHIELDS.

THESE buildings are now being erected at South Shields, and occupy an elevated position at the Westoe-road end of the island site known as the Ogle-terrace site. The remainder of the site, which is of considerable area, is reserved for other public buildings, as may be developed in the future. Provision is made in the scheme for future extension which may be effected in a variety of ways.

Shortly described, the accommodation in the present building will comprise, on the ground floor, offices for the town clerk, borough surveyor, borough accountant, medical officer of health, and inspector of nuisances, as well as accommodation in Broughton-road for the weights and measures staff.

The basement will contain strong rooms and store room for the various departments, also spare rooms, which might in emergency be used by the officials.

The first floor will comprise the council chamber, ante-room, mayor's parlour, cloak-room, and writing-rooms for the members of the council, three committee rooms, a spare suite of offices, and caretaker's quarters.

The construction will be of the most permanent and durable character and fireproof throughout. The principal elevations will be faced with stone from quarries in the Newcastle district, the back elevations with stone dressings and approved local bricks. The staircases and halls will be ashlar faced and the corridors treated in character therewith.

The window-frames and sashes to principal fronts will be of teak and the principal rooms finished with oak with wainscot panellings.

Owing to the nature of the sub-soil a special construction has been designed for the foundations, in compliance with certain tests made on the ground, and the weights distributed in accordance therewith. In conjunction with this work, in addition to the iron glass enamelled system of drainage for the disposal of sewage, a system of agricultural drainage has been designed.

In the architectural treatment of the exterior

an endeavour has been made to suggest the relative importance of the different portions of the buildings. The tower has been placed at the important angle of approach and will face the top of Fowler-street, so that it will be a much more conspicuous object up the hill from the town, than if placed in the centre of Westoe-road façade. The upper part will receive a three-parts chiming tower clock, with dials glazed for illuminating purposes.

In the sculptural embellishments of the exterior subjects emblematic of the industries of the borough will be introduced.

The contract has been let to Messrs. Neill, of Manchester, at 47,900*l.*

The drawing from which the illustration is taken is hung at the Royal Academy. As we remarked, in our article on "Architecture at the Royal Academy," on the rather gloomy effect of the drawing, we may add that the architect tells us that it was coloured to represent the materials to be used in the construction, "as modified by local atmospheric conditions."

LAMBETH MUNICIPAL BUILDINGS COMPETITION.

WE publish this week the perspective view and plans of the first premiated design for Lambeth Municipal Buildings, by Mr. S. Warwick and Mr. H. A. Hall, and the perspective view of the second premiated design, by Mr. H. P. Burke Downing.

FIRST PREMIATED DESIGN.

The following are the architects' notes in explanation of the intention of their design :—

General Arrangements.—The buildings are arranged on the site so as to use the angle to advantage and leave the utmost room at the rear without having to cramp the present buildings. The main entrance and grand staircase are placed at the corner of Brixton-hill and Acre-lane, as being the most convenient position having regard to the station close by. This arrangement also lends itself to a satisfactory treatment of the angle. The council chamber, rates office, and rates appeal office are placed on the main axis of the buildings, where they are easily accessible from their respective entrances, and are well lit and free from noise. All the rooms of the several departments are grouped together, and the sizes are in every case those required.

Exterior.—The elevations are treated in a free classic manner in Portland stone and red brick. A tower is designed to accentuate the main entrance and add dignity and importance to the whole building.

First Floor Arrangements.—On the first floor the corridors branch off from the head of the grand staircase with committee-rooms on either hand, and lead to the council chamber, which is thus equally accessible from both corridors. The ante-room forms a spacious division lobby and makes access convenient throughout the various council rooms.

Materials.—The elevations to be carried out in white Portland stone and red bricks—six courses to the foot with wide joints. The roof to be covered with green Tilberthwaite slates. The whole of the work to be fire-resisting throughout. The grand staircase to be in Hopton Wood stone, with polished balustrades and dado of the same material. The main landing to have a domed ceiling, with coffered ribs and enriched panels. The council chamber to be panelled in oak and to have marble columns and segmental plaster ceiling over. The committee-rooms to be panelled in fumed pitch pine, and to have segmental plaster ceilings.

SECOND PREMIATED DESIGN.

In explanation of this design, Mr. Downing writes :—

"Of the two frontages which the site possesses that to the fine thoroughfare of Brixton-hill is obviously marked out for the principal elevation of the building. The crowded corner at Acre-lane is as obviously unsuited for the main entrance to a public building of this nature, and the main entrance has, therefore, been placed in the centre of the frontage to Brixton-hill. With the ample area available, the requisite accommodation could, without difficulty, be provided on two floors in addition to the basement, so that a lofty building would have been unnecessary.

These considerations, amongst others, have influenced the adoption of the style in this design, and it is hoped that in the result a monumental character and sober dignity, suited to its purpose, has been given to the building. The limit of expenditure does not allow of the building of a tower, which might have formed a special feature, but it would provide no additional accommodation proportionate to its cost, and even as a clock tower, having regard to the nearness of S. Matthew's Church, would have been of no public utility. While, therefore, the corner has been suitably emphasised by particular treatment in the design, it has been dealt with as a continuation of the main elevation."

COMPETITIONS.

MUNICIPAL BUILDINGS AT LAMBETH.—Lambeth Borough Council on Thursday, the 11th inst., considered the award of the assessor (Mr. Henry T. Hare, F.R.I.B.A.), with reference to the open competition for designs for municipal buildings at Brixton-hill and Acre-lane, Lambeth, to cost not more than 35,000*l.* The General Purposes Committee reported that they ventured to express their agreement with Mr. Hare's opinion—viz., that the Council had every reason to congratulate itself, first, on the response of architects to the invitation to compete, and next upon the high standard which most of the designs had attained, while several possessed very considerable merit. The assessor placed No. 66 first, and Nos. 75 and 94 second and third. Continuing, the report stated :—

"Having heard Mr. Hare's explanations and advice, and having had the benefit of a personal inspection of the designs under his guidance, we unanimously decided to recommend the Council to accept Mr. Hare's award, and to adopt the design placed first by him, subject to the conditions of competition, and to a satisfactory tender being hereafter received."

The Council having adopted the Committee's recommendation, the sealed envelopes containing the names of the competitors were opened, and it was found that the authors of No. 66 were Messrs. Warwick & Hall ; that the author of the second design (who will receive 200*l.*) was Mr. Burke Downing ; and the authors of the design placed third (who will receive 100*l.*) were Messrs. Crouch, Butler, & Savage. Thanks were expressed to Mr. Hare for bringing the competition to so successful an issue.

SCHOOLS, DARELL-ROAD, RICHMOND.—The Education Committee of the Richmond Town Council has presented a Report on the plans for this school, which is to accommodate at present 500 children. The architects had been instructed so to design the building as to admit of the enlargement necessary to accommodate eventually 1,000 children, without spoiling its uniformity. Alderman Edgar moved the approval of the set of plans and designs No. 2. This was adopted, as also the recommendation that No. 4 plans be placed second in order of merit. The Mayor then opened the sealed envelopes, and it was discovered that the author of No. 2 was Mr. E. J. Milner Allen, 24, Ladbrooke-gardens, London, and the author of No. 4 was Mr. C. Harrison Townsend, 32, Great George-street, Westminster. On the suggestion of Councillor Banks, it was agreed that the various plans should be on view in the Town Hall, and that all competitors should be invited to come and see them. There is no mention made of an assessor in deciding the competition.

NEW CEMETERY, WILMSLOW.—The Wilmslow District Council met on the 15th inst. to decide upon designs and plans for their new cemetery. They had offered premiums of 25*l.*, 15*l.*, and 10*l.* Mr. H. Beswick, Cheshire County architect, was the assessor, and his awards were :—(1) W. Longworth (Manchester) ; (2) H. C. Cullock (Manchester) ; (3) C. T. Taylor (Oldham). The Council's Cemetery Committee recommended Mr. Taylor's design as the most suitable for Wilmslow, and the Council accepted this with one dissentient.

BOOKS RECEIVED.

ITALIAN ARCHITECTURE. By J. Wood Brown. Langham Series of Art Monographs. (A. Siegle. 1s. 6d.)

CONCRETE : PLAIN AND RE-INFORCED. By F. W. Taylor and Sanford E. Thompson. (Chapman & Hall.)

THE ROCK TOMBS OF EL AMARA. Part II. By N. de G. Davies. (Egypt Exploration Fund.)

EHNASYA : 1904. By W. M. Flinders Petrie. (Egypt Exploration Fund.)

ROMAN EHNASYA : 1904. Plates and text supplementary to "Ehnasya." By W. M. Flinders Petrie. (Egypt Exploration Fund.)

The Student's Column.

TYPICAL STRUCTURES IN CONCRETE-STEEL.—XX.

TRANSIT SHEDS : MANCHESTER SHIP CANAL (*continued*).

CONTINUING our description of the floor system in the transit sheds, we may first call attention to Fig. 134, which shows a column connexion, part of a main beam, two cross-sections of a secondary beam, and a section of the floor slab. Fig. 135 is the cross-section of a secondary beam near the support, where the middle two longitudinal bars are bent in an upward direction, for the purpose we mentioned last week when describing the construction of the main beams.

After the concrete of the main and secondary beams had sufficiently set, a 1-in. layer of concrete was spread over the centring, and upon this the first series of rods of the reinforcement for the floor slab was laid out. These rods, ranging from ¼ in. to ⅝ in. diameter, were spaced 12 in. apart, in rows parallel to the secondary beams. A second 1-in. layer of concrete was spread over the rods, and the second set was then laid out, 6 in. apart, transversely to the first set.

Concrete was next deposited to the thickness of 2 in., in three strips, one 24 in. wide midway between and parallel with two adjacent joists, and one 12 in. wide next to each of the side joists of each floor panel. Thus, in each span of 8 ft. between the joists there were three ridges and two hollows, over which the third series of rods was laid, 6 in. apart, each rod being bent to fit the contour of the concrete.

The hollows were next filled up and enough concrete was added to cover the raised parts of the rods, the material being thoroughly tamped down. After this operation the fourth and last series of rods was laid at right angles to those previously fixed. A final layer of concrete was added, and, after being rammed and levelled, made the slab 5 in. thick. As the work progressed the projecting ends of the beam stirrups became incorporated in the floor slab, which, extending continuously over the beams and joists, thereby increased the total depth of those members to 23 in. and 19 in. respectively. In every case the rods laid in the floor slab project over their supports by at least 6 in., and the ends are bent over to secure good anchorage. The details of the construction here described are represented in Fig. 134.

All the walls of the sheds are built entirely of concrete-steel, and, as they carry no load whatever, it was not necessary to make them more than 4 in. thick. It should be noted, however, that the north fronts of the sheds have no walls, strictly speaking, but are provided with cast-iron sliding doors, fitted with rollers, running on top and bottom guides.

The method adopted in building the walls was to erect a network of thin steel rods between adjacent columns at the ends and back of each shed, and then to fill in concrete by the aid of suitable moulds, built up of boards as the work proceeded.

On the first and second floors an opening 12 ft. wide was left in the middle of the wall at each end of every shed, giving access to the gangways connecting the adjacent warehouses (see Figs. 129 and 130). Two other openings were provided at each end wall on either side of the gangway, as shown in Fig. 130, these being intended to facilitate the loading and unloading of vans and lorries, by means of 30-cwt. electrically-driven hoists fixed on the roof.

Reference has already been made to the five towers at the back of each shed. As shown in Fig. 137, they project a considerable distance beyond the face of the building, and extend from the level of the first floor to a height of some feet above the roof level, being supported on massive cantilevers of concrete-steel. The upper part of each tower is extended for about 10 ft. over the flat roof of the shed, and under the roof of each tower an electrically-driven hoist is fixed on two 16-in. rolled steel joists 22 ft. long. Concrete-steel columns of special design are built into the walls for the purpose of helping to support these joists.

The towers are perfectly open from the bottom to the roof, being intended for the hoisting of perishable goods under cover from vehicles below, or from one floor to another,

or for loading up vehicles with goods passing through or stored in the sheds. The towers are about 12 ft. square, and have 4-in. walls of concrete-steel, in which windows are provided on each story, as shown in Figs. 137 and 129 *ante*.

The balconies built between the towers at the level of the first floor also provide shelter for vans waiting their turn to pass under the hoists in the towers or being loaded at additional loading stations, provided by doors in the wall of the building and openings through the floor of the balcony.

The cantilevers supporting the towers and balconies are illustrated in Fig. 136, and have a projection of 12 ft. Most of them are 20 in. deep at the free end, but the depth is varied according to the load to be carried, there being three standard types of construction for different parts of the buildings, the maximum depth being 2 ft. at the outer end and 6 ft. 6 in. at the supporting column.

As shown in Fig. 136, the reinforcement includes three systems of bars—one series at the top consisting of four horizontal bars $1\frac{3}{4}$ in. diameter, these being continuations of the bars in the secondary beams of the first floor; another series at the bottom consisting of six $1\frac{3}{4}$-in. diameter bars, coming up from the wall, and bent out so as to follow the curve of the cantilever; and one series consisting of $1\frac{3}{4}$-in. diameter bars, anchored into the wall and connecting the first two series in a direction

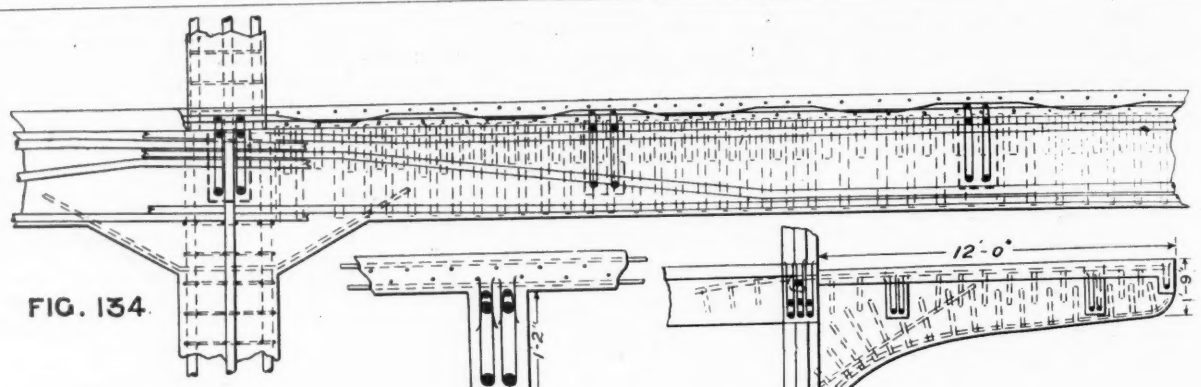


FIG. 134.

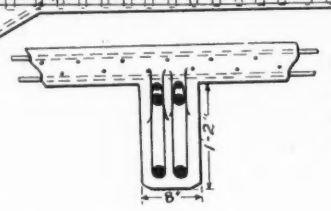


FIG. 135.

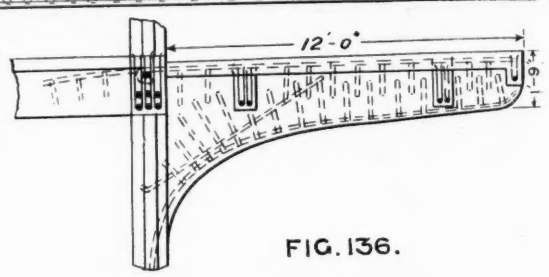


FIG. 136.

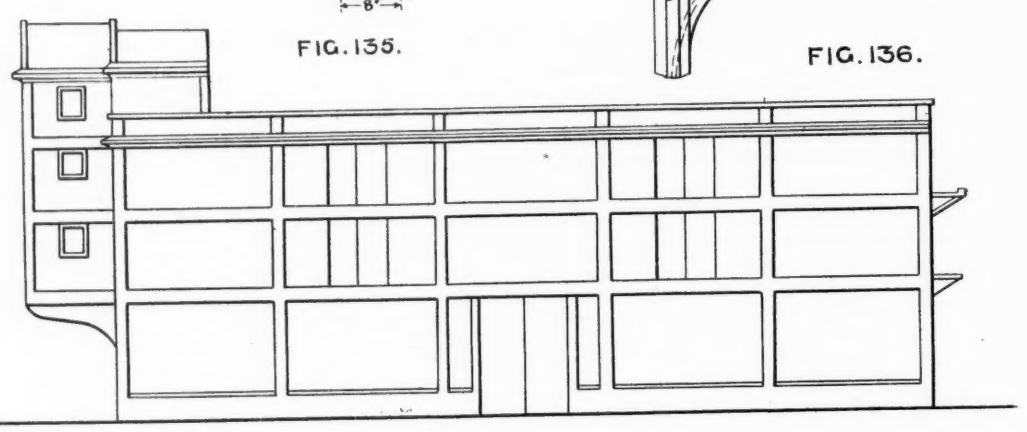


FIG. 137.

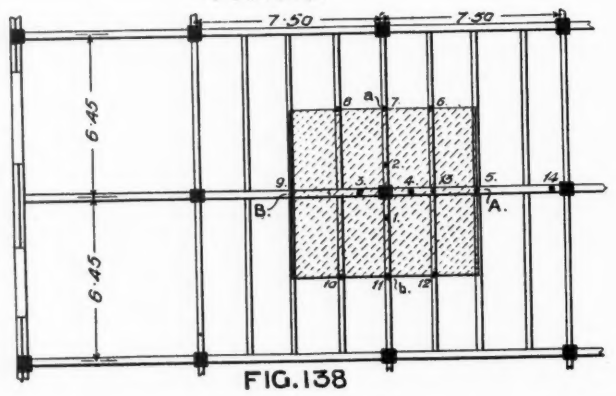


FIG. 138.

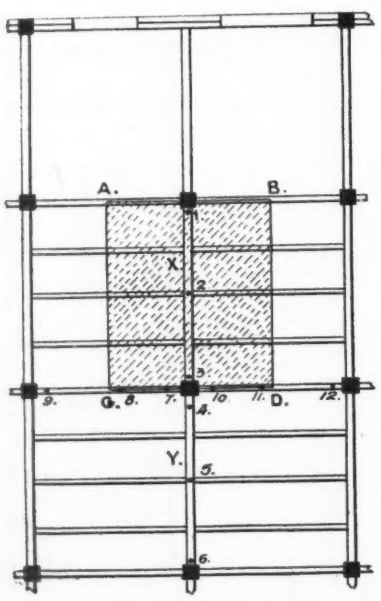


FIG. 139.

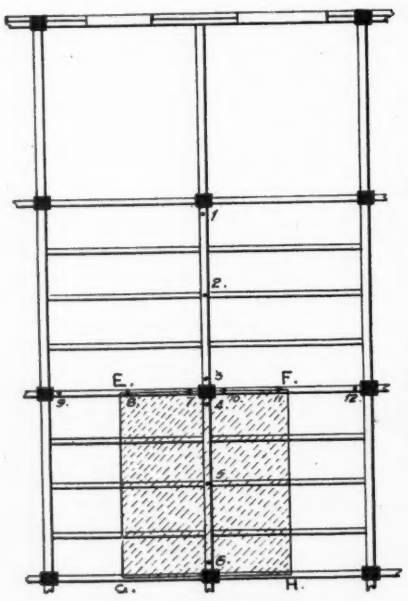


FIG. 140.

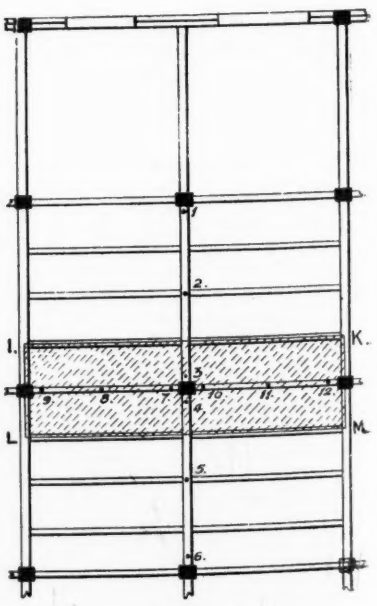


FIG. 141.

Illustrations to Student's Column.

tangential to the curve of the cantilever close to the column. Two bars of the upper set are embedded for about 3 ft. into the beams of the first floor and the other two are hooked round horizontal bars inserted in the wall columns. Two systems of stirrups are employed in addition to the bars, for the purpose of resisting shearing stresses, the manner in which they are disposed being indicated in Fig. 136. The cantilevers are connected laterally by beams running parallel with the wall of the building, and over these is a floor slab of concrete-steel.

Each shed is provided with three stairways, situated at each end and in the middle of the building, as indicated in Figs. 129 and 130. Each staircase includes forty-eight steps, twenty-four between the ground and first floors, twelve between the first and second floors, and twelve between the second floor and roof. The enclosures, treads, and all other details of these staircases are of concrete-steel.

At the front of each shed a loading balcony, with a projection of 4 ft., is provided at the level of the first floor (see Fig. 137), being carried by concrete-steel cantilevers with a cast-iron nosing, so as to prevent injury by the accidental contact of goods being hoisted or lowered. Above this balcony a series of eighty-six lifting platforms extends along the front of the sheds at the level of the second floor. These platforms, which are hinged so that they can be lifted up when not in use, are made of pitch pine with oak framing, and when lowered are supported by the iron brackets shown in Fig. 137. Similar hinged platforms are provided at each story in front of the openings giving access to the hoisting towers.

Being built entirely of concrete-steel, the sheds themselves are incombustible, but for the purpose of enabling the officials to isolate any local outbreak of fire in the goods stored, and to deal with it in the most efficient manner, the various floors of each shed are divided into two parts by a 4-in. concrete-steel party wall, extending from front to back. In each party wall there are two openings 12 ft. wide, fitted with double sliding doors, these and all other doors in the buildings being of fire-resisting construction.

The parapets along the sides and back of each shed are formed by a continuation of the concrete-steel outer walls. These parapets are 39 in. high, and inside them runs a concrete-steel rain-water gutter. The parapet at the front of the sheds is of cast iron, secured by foundation bolts let into the concrete below, but the reason for the choice of this material is not very apparent. Concrete foundations have been built on the roof, between the bridge and the front parapet, for the 30-cwt. electrically-driven hoists previously mentioned.

The bridges, or gangways, connecting the adjacent buildings are about 24 ft. long by 12 ft. wide. Each bridge is supported upon two rolled steel joists, 16 in. deep, connected by four $1\frac{3}{8}$-in. diameter tie-bars. The decking and other details of the bridges are composed entirely of reinforced concrete, and it should be noted that the concrete is quite separated from that of the sheds, gaps $1\frac{1}{2}$ in. wide being left at each end to provide space for expansion in hot weather.

One interesting feature in connexion with the design and construction of these buildings was the very complete manner in which provision was made for embedding bolts, hooks, and other fastenings for the attachment of various structural details and for forming conduits to receive pipes and electric-light wires. Provision for the numerous fastenings had to be made in the timber moulds for the beams and other members. In some places it was necessary to insert timber blocks, so as to form holes in the concrete, wherein the fastenings could be caulked with cement, and in other places the fastenings themselves had to be inserted through the sides or bottom of the moulds. Owing to the great number of the different attachments and the immense variety of size and shape, considerable care was necessary to avoid mistakes.

Provision for running electric-light wires was made by embedding tubes in the concrete near the upper surface of the floor beams. These tubes were filled with dry sand so as to enable them to withstand the weight of the concrete, the ends being sealed up with plaster of Paris. After completion of the concreting, the ends of the tubes were unsealed, and, the sand being removed, the conduits were ready for wiring.

The main cables for the supply of electricity for power and light are suspended from the under side of the floors by means of eye-hooks screwed into blocks of wood, which were set in the beams during construction, as described above.

The floors and flat roof of each shed are finished with asphalt. On the ground floor there are two $\frac{3}{4}$-in. layers of this material laid in sheets with overlapping edges, on the first and second floors $\frac{3}{4}$-in. layers, and on the roof two $\frac{1}{2}$-in. layers with overlapping edges.

In concluding this description of the sheds, we cannot do better than give some results obtained during the tests which were conducted on the columns and floors in March, 1904.

We will first take the test of a column on the second floor. The area covered by the load is indicated in Fig. 138, and the results of the tests are given in Table I. Fourteen instruments were employed for the measurement of deflection, the positions of these being shown by numerals on the plan.

All the floors and the flat roofs were calculated for a normal load of 1,875 kilogrammes per square metre (384·37 lb. per sq. ft.), and were tested to one and a half times this load—namely, to 2,800 kilogrammes per square metre (574 lb. per sq. ft.). As representative examples of the tests, we have selected three which were conducted upon main and secondary beams on the second story. The areas covered by the loading are shown in Figs. 139, 140, and 141, and the results are given in Table II.

Tests Nos. 2, 3, and 4 were conducted thus :—

The area ABCD (Fig. 139) was first loaded up to 45 tonnes, then to 90 tonnes, and finally to the full test load of 140 tonnes.

The area EFGH (Fig. 140) was first loaded by the transfer of 45 tonnes from ABCD, then 45 tonnes and 50 tonnes were successively transferred from ABCD, making up the full test load of 140 tonnes. Thus, when the load of 45 tonnes was on EFGH, 95 tonnes still remained

TABLE I.—TEST NO. 1, UPON A COLUMN ON THE SECOND STORY OF SHED NO. 5 (SEE FIG. 138). TEST LOAD, 140 TONNES.

(All Readings are given in Millimetres.)

Numbers of Instruments.	Readings Taken During Loading.					Readings Taken During Unloading.					
	Before Loading.	At 45 tonnes.	At 90 tonnes.	At 140 tonnes.							
Hours.	Morning.					Afternoon.					
	8h. 40m.	9h. 40m.	10h. 50m.	11h. 50m.	2h.	2h. 15m.	2h. 30m.	2h. 45m.	3h.	3h. 30m.	4h.
	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm	mm.
1	2·0	2·2	2·5	3·0	3·0			Maximum Compression.			
2	2·0	2·2	2·3	2·6	2·6	—	—	1·4	—	—	—
3	2·0	2·4	2·9	3·3	3·3	3·3	3·0	2·7	2·3	1·5	1·6
4	2·0	2·3	2·8	3·4	3·4	Deflection of Main Beam (B)				.. ..	3·1
5	2·0	3·0	4·4	6·0	6·2	,,	,,	,,	(A)	.. ..	2·0
6	2·0	3·0	4·6	6·2	6·3	—	—	—	—	—	—
7	2·0	2·8	4·0	5·0	5·0	Deflection of Secondary Beam (*a*)				.. ..	2·4
9	2·0	3·2	4·3	5·3	5·4	5·4	4·4	3·4	2·0	0·5	0·5
11	2·0	2·8	3·6	4·9	4·9	Deflection of Secondary Beam (*b*)				.. ..	1·9
12	2·0	3·2	4·5	6·2	6·2	—	—	—	—	—	—
13	2·0	2·8	4·1	5·5	5·6	—	—	—	—	—	—
14	2·0	2·2	2·4	2·9	2·9	—	—	—	—	—	—

TABLE II.—FLOOR TESTS ON THE SECOND STORY OF SHED NO. 5.

(All Readings are given in Millimetres.)

—	Test No. 2, Fig. 139.						Test No. 3, Fig. 140.					Test No. 4, Fig. 141.							
Numbers of Instruments.	Readings from the Instruments.						Readings from the Instruments.					Readings from the Instruments.							
	Before Loading.	At 45 tonnes.	At 90 tonnes.	At 140 tonnes.		Deflection.	At 45 tonnes.	At 90 tonnes.	At 140 tonnes.		Deflection.	At 45 tonnes.	At 90 tonnes.	At 140 tonnes.	Normal Load.	After Unloading.		Deflection.
Dates and Hours.	March 17.			March 18.								March 19.							
	Morning.		After-noon.	Morning.				Afternoon.				Morning.					Afternoon.		
	9h.	12h.	4h 30m.	7h.	9h.	10h. 30m.		11h. 40m	1h. 45m.	3h. 5m.	4h. 5m.	7h.	8h.	9h.	10h.	11h.	12h. 30m.	10h.	
1	mm. 2·0	mm. 2·6	mm. 3·5	mm. 3·5	mm. 4·1	mm. 4·2	mm.	mm. 3·6	mm. 3·0	mm. 2·2	mm. 2·2	mm.	mm. 2·2	mm. 2·2	mm. 2·4	mm. 2·4	mm. 2·3	mm. 2·0	mm. 2·0	mm.
2	2·0	4·5	8·5	8·9	12·7	12·9	8·7	9·9	6·3	3·0	2·8		3·8	3·9	5·0	5·0	4·5	3·5	3·2	
3	2·0	2·6	3·3	3·3	4·1	4·2		3·4	2·5	1·6	1·6		2·3	2·6	3·1	3·1	3·0	2·4	2·2	
4	2·0	1·8	1·9	1·3	1·2	1·2		2·0	3·2	4·3	4·5		3·7	3·6	3·2	3·2	3·2	2·6	2·4	
5	2·0	1·3	0·7	0·6	0·2	0·2		3·4	8·0	12·6	13·0	8·6	9·1	8·6	5·6	5·6	5·2	3·9	3·2	
6	2·0	2·0	1·7	1·7	1·6	1·6		2·4	3·4	4·3	4·4		3·7	3·5	2·8	2·8	2·7	2·6	2·9	
7	2·0	1·9	1·9	1·9	1·9	1·9		1·9	1·4	1·8	1·8		1·7	1·9	1·9	1·9	1·8	1·9	1·9	
8	2·0	2·2	2·5	2·5	2·8	2·8		2·7	2·5	2·5	2·4		4·0	4·2	5·6	5·7	5·2	2·3	2·0	
9	2·0	1·9	1·9	1·9	1·9	1·9		1·9	1·9	2·0	2·0		2·1	2·1	2·3	2·3	2·2	1·8	2·0	5·5
10	5·0	3·8	3·3	3·2	3·2	3·2		2·0	1·8	1·8	1·8		1·2	1·2	1·3	1·3	1·2	0·6	0·4	
11	2·0	2·3	2·8	2·8	3·3	3·4		3·4	3·4	3·8	3·8		4·9	5·3	7·5	7·7	7·2	3·2	3·0	
12	2·0	2·1	2·0	1·9	1·9	1·9		1·9	1·9	2·0	1·9		3·1	2·2	2·4	2·4	2·3	2·0	1·9	

on ABCD, and when the load of 95 tonnes was on EFGH, 45 tonnes remained on ABCD.

A similar method of procedure was followed in transferring the load from the area EFGH to the area IKLM (Fig. 141).

During the loading of ABCD the beam Y, which is a continuation of the beam X, indicated an inverse deflection, being bent in an upward direction. The same effect was produced in X while Y was under load. It should be noticed that the floor areas tested exhibited remarkable elasticity.

The mean deflection shown by tests Nos. 2 and 3 measured only 8·7 millimetres and 8·6 millimetres respectively. As the permissible amount of deflection was 12·1 millimetres, these results are very satisfactory. The mean deflection observed in test No. 4 was 5·5 millimetres, the permanent set after unloading being inappreciable.

COST OF LUNATIC ASYLUMS.

AT the annual meeting of the County Councils Association, held at the Westminster Guildhall, on Wednesday, under the Chairmanship of Sir John Hibbert, Mr. J. Willis Bund (Worcestershire County Council) brought forward the question of the unnecessary expenses occasioned by the requirements of Government departments, especially in connexion with lunatic asylums and isolation hospitals. He said there appeared to be a ring with regard to these asylums. There were certain architects who gave a great deal of attention to the matter, and they were well known to the Lunacy Commissioners. If the local authority did not go to one of these architects, their life was made a burden to them. If they went to one of these architects things went smoothly. Then they advertised for tenders and the architect said, "I know So-and-so, and he is a very good man," and the committee immediately took Mr. So-and-so. The Lunacy Commissioners did not give any standard of what they wanted, or any idea what contractors could carry out, and unless they went to these people they could not get their plans approved, and thus the counties were deprived of the benefits of competition. That was the great evil of the present system. He did not know how it was to be altered, but he did believe that a perfectly good lunatic asylum could be put up at much less cost than at present. The fact was that the Poor Law Authorities built most spacious workhouses, and there was a kind of rivalry between the Local Government Board inspectors and the Lunacy Commissioners inspectors, and one tried to go one better than the other.

Lord Belper said that undoubtedly pressure was brought upon authorities to employ the architect connected with the Lunacy Commissioners, and there was the greatest difficulty in getting plans passed at all except those of the architects suggested by the Commissioners. The whole pith of the question lay in this, that so long as the consulting architect of the Lunacy Commissioners was allowed to take jobs to build asylums, or to be employed as one of the architects recommended by the Lunacy Commissioners, so long would the difficulty remain. He could not, at a meeting like that, give particulars of his own experience, but he must say that some of the obligations put upon his county by the Lunacy Commissioners were quite unreasonable. The matter was one of great importance if the system which prevailed when he went to the Commissioners still existed, for they certainly ought to ask that the advising architect to the Lunacy Commissioners should not himself be allowed to take jobs and build asylums.

Sir H. F. Lucy said that some difficulty was experienced in connexion with the engineers of the Local Government Board, for it was quite impossible or extremely difficult to get any sewage or sanitary scheme passed unless it was worked out in conjunction with an engineer upon the list of that authority. He thought the whole question of these officers taking work demanded the most serious attention of the heads of departments.

Mr. Parry said that the Newport Corporation chose their own architect for an asylum, and were treated with the utmost courtesy by the Lunacy Commissioners.

The meeting passed a resolution calling attention to the unnecessary expense occasioned by the unnecessary requirements of Government departments, especially in connexion with lunatic asylums and isolation hospitals.

QUEEN VICTORIA MEMORIAL, YORK.—The memorial statue of the late Queen Victoria for the City of York has now been completed. The commission for the memorial was entrusted to Mr. George W. Milburn, sculptor, York.

SOCIETY OF ARTS.

AT a meeting of the Society of Arts on the 16th inst. Mr. H. Hall described the recent discovery made by Mr. Naville and himself at Deir-el-bahri, near Thebes, of a temple of the XIth dynasty, built for the King Mentu-hetep about 2500 B.C. It was discovered close to the much larger and later temple built by Queen Hatshepsu as a tomb for her father, Thotmes I., of the XVIIIth dynasty. Mr. Hall showed first some very fine slides of the latter which forms an impressive picture, with its white colonnades and terraces standing at the foot of an enormous red cliff. It was first examined by Mariette, and is in remarkably good preservation. The subject of the evening, however, was more particularly the excavations which have been recently undertaken a little to the left of this, and at a lower level, and which have resulted in the unearthing of a smaller temple of the XIth dynasty, the oldest yet found in Thebes. The remains consist of a square mass of heavy flint nodules, faced with stone which Mr. Hall supposed to have been the base of a pyramid, standing on a platform surrounded by colonnades of columns of the Proto-Doric type. The actual tomb of King Mentu-hetep has not yet been discovered, and the lecturer did not suppose the pyramid to be sepulchural, but only symbolic. The columns of the inner colonnade are octagonal, those of the outer, square, and at a lower level. The height of these seems to have been about 12 ft., but few of them are complete. Between the two a wall, remarkably rich in relief carvings, was discovered. In the older XIth dynasty work the masonry is of a very fine description, consisting of fine-jointed blocks as large as 6 ft. by 4 ft. The latter stonework, added in the XVIIIth dynasty, is not so good. Hatshepsu's temple appears to have been built partly on the top of some of the walls of the older building, and one wall of fine masonry discovered ran right under the Hathor shrine of the former. The temple is approached by a ramp, and at the entrance a red granite threshold, 9 ft. long, was discovered still showing the socket in which the great bronze gate formerly moved. Excavated in the rock of the platform were found a number of tombs of priestesses of Hathor. In places the pavement over these tombs was supported by rough logs of timber, very possibly, Mr. Hall said, coeval with the temple, the dry climate having prevented its decay. Unfortunately these tombs have been rifled by plunderers at some remote period, but a number of articles of great interest have been discovered, including a white limestone sarcophagus of one of the priestesses of Hathor, covered with reliefs executed in a fine though rather stiff manner, of scenes in her life. Hathor, who is generally represented in the form of a cow, figures prominently. The most curious objects, however, were the small-scale models of workmen at work in granaries and bakeries, of which the lecturer showed slides. A fine alabaster head of a cow, representing Hathor, was also found, the carving of which is magnificently executed. One interesting fact about these is that it is known that they were executed by the artist, Mertisen, and his school, who appear to have begun a revival in art about this time. The lecturer concluded by referring to the need for further subscriptions to the Egypt Exploration Fund in order to carry on the work.

A spirited discussion followed, in which Mr. Somers-Clarke, Mr. Stannus, and Mr. Phenè Spiers took part, as to whether the temple of Hatshepsu was copied from the earlier temple, Mentu-hetep, or not. The point, however, remained finally unsettled, the general opinion being that it was not. The lecturer, however, maintained his opinion that it was.

THE RESTORATION OF HEXHAM ABBEY.—A meeting of the Hexham Abbey Restoration Committee was held on the 11th inst. in the vestry of the Abbey Church, Hexham, the Rev. E. S. Savage, rector, presiding. Mr. Temple Moore, architect, waited upon the committee and laid his plans for the building of the nave before them. Mr. Moore explained that his plans had been submitted to and approved by three consulting architects, and they were adopted by the committee. Mr. Moore was directed forthwith to prepare estimates for the work. The committee also resolved to proceed to obtain the faculty to enable them to carry out the work. The proposed agreement with the County Council for the removal of the stables, etc., in the police yard, was considered and agreed to, subject to certain conditions. Attention was drawn to the condition of the north-west corner of the north transept, and Mr. Moore was directed to give that matter immediate attention.—*Newcastle Journal.*

OBITUARY.

MR. W. CROZIER.—We have to regret the death, in his 76th year, of Mr. William Crozier, M.Inst.C.E., on Friday, the 12th inst., at Scarborough, where he has resided since 1888, when, owing to ill health, he resigned the office of Surveyor, Engineer, and Architect for the County of Durham, after holding that office under the County Quarter Sessions nearly thirty years. Mr. Crozier was a native of Sunderland, and served his articles as a civil engineer with Mr. R. Nicholson, M.Inst.C.E., Newcastle-on-Tyne, and immediately on the completion of his articles was in 1851 selected out of a great number of candidates as Borough Engineer and Surveyor of Sunderland. Ordnance maps were not then in use, and he made a complete trigonometrical survey of the borough, laid out a complete plan of drainage, and carried out all the sanitary and architectural works. In 1859 he was elected County Engineer and Architect for the County of Durham, and up to 1880 he enjoyed a large private practice, carrying out many engineering and architectural works. He reconstructed the Assize Courts at Durham and the Moot Hall, Newcastle-on-Tyne, and arranged the ventilation of them. When Mr. Crozier was appointed the Durham County Lunatic Asylum for 300 patients was being built, and was enlarged under his superintendence to accommodate 1,300 patients, including an auxiliary asylum for 400 chronic cases, built at a cost of upwards of 40,000*l.* Mr. Crozier was a member of the Institution of Civil Engineers, and in 1902 he was elected a life member of the Institution. He leaves a widow and two sons, one of whom has held his appointment since his retirement.

GENERAL BUILDING NEWS.

RESTORATION OF SELSTON CHURCH, NOTTINGHAMSHIRE.—After a restoration extending over ten months, the parish church of Selston, dedicated to St. Helen, was re-opened for public worship on the 6th inst. The idea running through the whole work of restoration has been, as far as possible, to make the church as it was originally, and the endeavour has been to harmonise the extension on the north side with the old work, all of which has been scrupulously preserved. Here and there small fragments were found, from which it was possible to ascertain the original designs, and often the old work was incorporated with the new. The whole church was covered with plaster seventy or eighty years ago, and there were many layers of lime and colour wash. When these were removed—portions having first been done experimentally—no traces, with small exceptions, of original plaster could be found, but the jointing of the small stones was finished in the way that is now seen. Some small portions are the actual work, but the greater part was found to be decayed, and the effort to preserve it was unsuccessful, the stone crumbling away when touched. The exceptions mentioned were the spandrils between the twelfth century arches of the north arcade, where there were also traces of colouring, but the stonework behind was unfortunately so loose and poor that it fell to pieces. It was found possible to retain much of the old timber in the roof, though in places it has had to be spliced and otherwise supported in order to be rendered safe. The columns which had sunk considerably have been reset. All the chancel arches have been strengthened and repainted. The floor has been lowered 6 in., and is now within 2 in. of the original level. This has not only given an added height to the church, but has also exposed the varied bases to the columns supporting the side arches. The new work consists of a large north aisle, nearly the width of the nave, continued out eastwards as a north chancel aisle, in which the new organ will be placed, the choir and clergy vestries being beyond. The arches on either side of the chancel are the originals opened out. The external stone of the extension is Hollington, the interior being a mixture of Mansfield, Derbyshire, and Yorkshire. The porch and passages are tiled with Ruabon adamantine tiles, and the floor under the pews is laid with wood blocks. The pews are of pitch-pine. The old bells have been rehung in new frames, and new bells added to complete the peal of six, this work being carried out by Messrs. Barwell & Co., of Birmingham. Messrs. J. A. Chatwin & Son, of Birmingham, were the architects, and Messrs. Collins & Godfrey, of Tewkesbury, were the contractors. —*Nottingham Guardian.*

CHANCEL, EASTLEIGH CHURCH, HANTS.—A new chancel has been erected at this church, by which the seating accommodation has been increased by 250. The work, which was begun twelve months ago, has been carried out by Messrs. Wm. Parminter & Co., of Braintree, Essex, to plans prepared by Sir Arthur

Blomfield & Son. The chancel is built of Berryhead stone, with Bath stone dressings, the interior being treated also with Bath stone. The chancel window has seven lights with tracery and spandrils, beneath which is a cornice, made ready for the fitting of a reredos. The chancel and sanctuary floors are inlaid with mosaic of green pattern, with Maltese crosses and other designs worked in. The Holy Table is of oak, and the super altar is of black marble. The choir stalls are of English oak with carved finials. Beneath the south chancel window is a credence piscina, with sedilia. The organ-chamber is situated over the arcade. The design of the cornice is taken from York Minster, whilst the arches are filled in with lime stucco. The windows are of cathedral-tinted glass, and the roof is of panelled board with oak principals and ribs, with hammer beams. The tender for the work was 3,431*l*. A new organ, built by Hele & Co., of London, Plymouth, and Exeter, has also been added.

CATHOLIC CHURCH, WHITWICK.—The foundation-stone of the new Church of the Holy Cross, which is being erected on the picturesque site of the Parson Wood Hill, Whitwick, was laid recently. In the new edifice the nave will be 34 ft. by 61 ft., and there will be north and south aisles, divided from the nave by an arcade of fine arches. The chancel is to be 30 ft. by 22 ft., terminating at the east end by an apse, providing accommodation for the high altar, piscina, and sedelia, and stalls for a choir of forty men and boys. The north and south transepts are intended to be used as side chapels. The baptistry is placed off the second bay of the nave. At the west end the principal entrance porch is to be erected, and there will be a south porch. The roof will be of open timber, the height from floor to ridge being 45 ft. The building will be early XIIIth century in style, and carried out with Whitwick Colliery sandstone bricks, with Ancaster stone dressings. The floors at the altars, chancels, and porches will be of ornamental ceramic or encaustic tiles. Through lack of funds it has been decided not to proceed at present with the upper stages of the tower, chancel, and north chapel. The church will seat over 500 persons, and the total cost will be slightly over 5.000*l*. The work is being carried out by Mr. Walter Moss, contractor, Coalville, under the supervision of Messrs. McCarthy & Co., architects and surveyors, Coalville.

ST. MARY'S CHURCH, CARDEN-PLACE, ABERDEEN.—An addition is about to be made to this church, the congregation having resolved to proceed with the erection of a hall and choir vestry, from plans prepared by Mr. Arthur Clyne, architect. The hall and vestry, which will be built on the south side of the church ground, towards Albert-terrace, will be designed in harmony with the architectural character of the church. The successful contractors are as follows:—Mason, Mr. James Gauld; carpenter, Mr. Alexander Hall; plumber, Mr. J. T. Ross; slaters, Messrs. Currie & Co.; plasterers, Messrs. Bannochie & Sons; painters, Messrs. Donald & Sons.

TRINITY CHURCH, LLANDUDNO.—This church is to be re-roofed, as the present roof has shown signs of instability. Mr. Edwin Turner, architect, has prepared the plans for the work.

NEW CHURCH, GRIMSBY.—The foundation-stones of St. Aidan's Church, Grimsby, were laid a short time ago. The new building will be of red brick, with Bath stone dressings. Its length will be 136 ft. with a width of 60 ft., and it will accommodate 700 people. The church will consist of a nave, two aisles, a chancel, a morning chapel, a sacristy, an organ-chamber, and a vestry. The foundations are composed of a raft of solid concrete, strengthened by iron girders. Mr. W. Ion is the builder, and Mr. W. T. Green is the contractor for the stonework. Mr. C. Hodgson Fowler, F.S.A., of Durham, is the architect. The cost will be between 8,000*l*. and 9,000*l*.

WESLEYAN CHURCH, EXETER. — The new Wesleyan church in St. Sidwell's, Exeter, has just been opened. The opening of the building marks the completion of the scheme started in 1896, of which the class and school rooms were the first instalment finished in the following year. The design for the whole was that selected by the trustees in a limited competition held in 1896, and submitted by the joint architects, Mr. Fred. J. Commin (Commin, Son & Bully), of Exeter and Westminster, and Mr. Walter B. Coles, of Exeter. The contractors for the joinery work throughout are Messrs. Westcott, Austin, & White, of Exeter, but the general construction has, for the most part, been carried out by the trustees of the building, with the assistance of Mr. Pullen as clerk of works, and a staff of local artisans. The building has been erected with English materials, and by local labour. The heating, on the small bore principle, together with the electric lighting, has been carried out by Messrs. Wippell Brothers & Row.

WESLEYAN CHURCH, CHORLEY.—The memorial-stones of a new Wesleyan church were laid recently at Chorley. The new building will have a frontage of brick, with stone facings, and will seat about 400 persons. The cost is estimated at 2,300*l*. The architect is Mr. W. H. Dimsley, Chorley, and the contractor Mr. L. Fairclough, of Adlington.

BAPTIST CHURCH, CHADWELL HEATH.—A new Baptist church is being erected at Chadwell Heath. The new building is situated on the south side of the High-road, and it will provide accommodation for about 270 persons. The cost, including land and furniture, will amount to about 2,000*l*. The architect is Mr. F. G. Faunch, of Ilford.

COUNCIL SCHOOLS, EALING.—The new Council schools in Little Ealing-lane are now nearing completion, and the infants' department was inspected by members of the Council Education Committee and Managers recently. The buildings are the outcome of an architectural competition, in which a selected number of architects were invited to submit designs. The education Committee decided last year to repeat the schools designed for the site at South Ealing on a similar site on the Marder Estate, West Ealing. Each of these groups consists of two main school buildings—a senior school of two departments for 400 boys and 400 girls, and a separate mixed school for 446 infants. These buildings are all on one floor. The site at South Ealing has an area of about 2 acres, with frontages to Little Ealing-lane and Weymouth-avenue. The senior school, for boys and girls, is placed on the north-east part of the site fronting Weymouth-avenue, and the infants' school is in the southern portion. The children's entrances are in Weymouth-avenue, and the schoolkeeper's cottage occupies the south-west corner of the land, with its entrance in Little Ealing-lane. The infants' school has two entrances leading into broad and short corridors, from which open cloakrooms and lavatories. Double doors at the ends of the corridors lead into a central hall, around which are grouped eight classrooms. Teachers' rooms and storerooms are contrived over the cloakrooms. The senior school for boys and girls, which is now nearing completion, is designed on the same lines as the infants' school, and has four entrances (two for each department), with cloakrooms and lavatories adjoining. Broad corridors lead into a central hall, with sixteen classrooms grouped around it. The hall will be divided by a movable screen, which will render each department self-contained. Teachers' rooms and storerooms are arranged over the cloakrooms, with windows that command the playgrounds. Covered play-sheds are provided in each playground, so planned as to form covered approaches to the outbuildings. A school-keeper's cottage is provided. The walls and ceilings are plastered, and a dado is formed of salt-glazed bricks around all the rooms, halls, and corridors. The floors are solid throughout, those in the classrooms and halls of deal, and those in the cloakrooms and corridors of granolithic paving. The warming of the school buildings is effected by a low-pressure hot-water installation. Fireplaces are also provided in the infants' school, and for the teachers' rooms. The general contractors for the Little Ealing Schools are Messrs. Joseph Dorey & Co., Ltd., of Brentford; the heating and electric light is being installed by Messrs. Strode & Co., of Regent's Park; and Messrs. Constable & Hart are laying the tar-paving of the playgrounds. Mr. Frank Griffin is foreman at the Little Ealing Schools, Mr. A. M. Southern is clerk of works for both groups of schools, and the architects are Messrs. F. H. Greenaway & J. E. Newberry, of Ealing and Westminster.

NEW SCHOOLS, HEREFORD.—The Education Committee has instructed the City Surveyor to prepare plans for the conversion of St. Peter's mixed school into a girls' school for the accommodation of 300 girls. He has also been requested to submit plans for a school to accommodate 200 infants on a site adjoining the present Holmer Schools.

SCHOOLS, WHITLEY BAY.—The new schools for Whitley Bay and Monkseaton, erected by the Northumberland County Education Committee, were opened on the 8th inst. The contract price for the schools was 12,250*l*., and the land cost 3,573*l*. Accommodation has been provided for 1,020 children. Mr. W. H. Knowles, architect, of Newcastle, designed the buildings.

COSSHAM MEMORIAL HOSPITAL, KINGSWOOD, BRISTOL.—The contract for the erection of the Cossham Memorial hospital at Kingswood has just been signed with Mr. A. J. Bevan, builder. The architect is Mr. Bligh Bond, and the hospital will occupy 4 acres at Lodge Hill, Kingswood. The hospital will be Early Georgian in style, the materials chosen being a red pennant facing stone, with Bath stone dressings, the roofs being covered with Cumberland slates. The building consists of a main central block, containing the administrative department and running east and west, and at the western extremity, lying north and south, are the wings containing the wards. The central feature of the principal block is the main entrance, which will be of bold and massive character, the pediment of which being supported by coupled Corinthian columns. At the junction of the administrative building is the south wing. The tower, which is octagonal in form, is terminated with a cupola rising to a height of 100 ft. The tower will contain a chiming clock, with four illuminated dials. At the entrance gates will be a caretaker's house, which is designed in harmony with the building. The site will be surrounded by stone walling and ornamental railing. The internal arrangements are as follows:—The central portion of the building is devoted to administrative purposes. On entering by the main approach, there is on the ground floor a receiving-room for patients, fitted with lavatory; to the right, next to this, is the matron's room, and at the extreme end are wards for cases requiring isolation. To the left of the entrance are a boardroom, 21 ft. by 16 ft., and a surgeons' sitting-room, with a complete suite of surgeons' rooms, including surgery and laboratory. A corridor runs throughout the length of this section, and communicates at its extreme western end with the surgical wards and patients' department. A staircase, having a central space to take a full-sized bed lift, leads to the upper floor, which is devoted to nurses' bed and sitting rooms, matron's bedroom, etc.; whilst the attics on the second floor provide sleeping accommodation for the servants. A similar corridor to that on the ground floor runs throughout the length of the building, and gives access at its further extremities, as before, to medical wards (over the surgical wards on the ground floor, and to more isolation wards at the further end), over those already described. The main wards are each 50 ft. by 25 ft., and are lighted on both sides and at the ends. Each is planned for ten beds, and has a separate system of lavatory arrangements in the small towers at the angles. Large dayrooms for patients are planned between the wards on either floor; and nurses' kitchen, with larder, linen-room, and general store, is also provided. On the ground floor there will be an operating theatre, with anæsthetic-room and sterilising-room attached. The theatre will be paved with mosaic. Bathrooms are provided for patients and staff, and these, as well as the corridors, lavatories, etc., will be floored with Venetian mosaic. The wards will be floored with wood blocks or concrete. In the north-east corner of the site will be another block of buildings, including the laundry, stabling, boiler-house, etc.

BOULEVARD, NEW PARISH HALL, HULL.—The new parish hall, which has been erected on the Boulevard, Hull, in connexion with the St. Matthew's Church, was opened on the 4th inst. The building has been designed for three purposes:—(1) as a Sunday school; (2) for carrying on the social work of the parish; and (3) for the use of public functions. It is built of red brick, with stone dressings. There are two large halls, that on the ground floor being 30 ft. by 51 ft., and the larger one on the first floor, which has stage, dressing-rooms, etc., being 30 ft. by 64 ft. At the rear there is a drawing-room, classroom, and kitchen accommodation. The cost, exclusive of the site and furnishing, is 2,500*l*. Mr. J. M. Dosser was the architect, and Mr. Mark Harper the principal contractor.

WORKHOUSE BUILDINGS, ANCOATS.—The new buildings of the Chorlton and Manchester Joint Workhouse in Ancoats are nearing completion. The institution includes a test-house and casual wards, the test-house being intended for able-bodied persons who have become chargeable to the poor rates, and to whom it is undesirable to grant privileges which are commonly enjoyed in workhouses where adults and children, the healthy and the infirm, are alike received. The test-house has accommodation for 230 persons. The test-house and the casual wards together cover an area of about 2½ acres. The buildings are in nine different blocks—three pavilions for the male casuals, two pavilions for the female casuals, two test-house pavilions for males, one test-house pavilion for females, with the administrative building and the receiving block, with officers' quarters attached. Included in the area are the labour yards and the usual 50-ft. space between the pavilions. The site is bounded by Harrison-street on the north, Stone-street on the east, Tame-street on the south, and Kennedy-street and the branch canal on the west. The entrance to the casual wards is in Tame-street, and that to the test-house in Harrison-street. The architect is Mr.

A. J. Murgatroyd, of Manchester. There are thirteen baths for the casuals, and six or eight for the inmates of the test-house. A fire-escape staircase is provided in each pavilion. The highest occupied building is four stories. There is a clock tower, which contains a water-storage tank of 1,500 gallons capacity. There is accommodation for 1,450 casuals and for 230 inmates of the test-house, and it is expected that the cost will be about 40,000*l*. The builders are Messrs. Burgess & Galt, of Ardwick, and Mr. Robert Carlyle, of Old Trafford.

FREE LIBRARY, BOLDON COLLIERY.—A public library has just been opened at Boldon Colliery. The new building has a frontage of 60 ft. to Hedworth-lane, and a depth of 50 ft. Pelaw facing bricks have been used, with moulded pediments. Mr. A. J. Redfern, of Sunderland, is the architect, and Mr. Robert M. Storey, of West Boldon, has carried out the designs. The cost, exclusive of site, was 1,600*l*.

HOLLYMOOR ASYLUM, NEAR BIRMINGHAM.—The Rubery Hill Asylum Annexe at Hollymoor is now complete. It occupies a site about halfway between the existing asylum at Rubery and Northfield. The site contains about 120 acres, and the buildings comprise patients' blocks and administrative buildings, including a dining and recreation hall, engine and boiler house, laundry, bakehouse, and workshops, and also homes for attendants, nurses, and servants, with dining and recreation rooms. The chapel is a detached building. As it is intended that the institution shall be treated as an annexe of the Rubery Hill Asylum no residence for the medical superintendent has been provided, but the buildings contain the requisite accommodation for three assistant medical officers. Lodges have been erected at the Bristol-road and Bedlam-lane entrances, and detached residences have been provided for the engineer, head attendant, and gardener, with eight semi-detached cottages for married attendants. There is an isolation hospital, including the necessary administration department. That portion of the buildings devoted to administration is of sufficient capacity to deal with 1,000 patients, but blocks have only at present been erected to accommodate 604 patients, as follows:—Sick and infirm, sixty-eight of each sex; epileptics, sixty of each sex; working patients, thirty of each sex; and chronics, 144 of each sex. The building, which was commenced about the end of March, 1900, to the plans of Messrs. Martin & Martin, of Birmingham. The builders were Messrs. J. Bowen & Sons.

BUSINESS PREMISES, BELFAST.—New premises have been erected in High-street, Belfast, for Messrs. M'Cullagh & Co. The building is equipped throughout with electric light, this work being fitted up by Mr. Stanley Johnston, of Belfast, the plumbing work being done by Messrs. James Lowden & Co., also of Belfast. The rear of the shop is lighted by two ceiling lights by the Pennycock Patent Glazing Company. The shop front and mahogany fittings are supplied by Mr. Alexander Mitchell from the architect's designs, and a cash delivery system is installed by the Lamson Pneumatic Tube Company. The plate-glass was supplied by Messrs. Clokey & Co., and the ornamental glass by Messrs. Campbell Brothers. The Carrara ware for the front was supplied by Messrs. Doulton & Co., of London. The general contractors were Messrs. M'Laughlin & Harvey, who carried out the work to the designs and under the superintendence of the architects, Messrs. Blackwood & Jury.

BANK PREMISES, MORPETH.—The new premises of Lloyd's Bank at Morpeth have been completed and opened. The block, which stands at the north-west corner of the Market-place, comprises, on the ground floor, a banking-hall, with private offices and a large strong-room, and first, second, and third floors. The building is built of Denwick stone, while the base, to a height of 3 ft., is from the quarries of Heworth Burn. The architects were Messrs E. B. Hoare and M. Wheeler, London. Messrs. Middlemiss, Stepney Bank, Newcastle, were the contractors for the work and fittings, and the sub-contractors were Messrs. Pentland & Co., Morpeth, for the plumbing; Mr. T. Dick, Morpeth, painting; Messrs. Burt & Potts, London, iron casements; the Gateshead Stained Glass Company, the lead glazing; and Mr. Angore, Newcastle, the marble flooring. The furnishings have been supplied by Mr. G. B. Grey, Morpeth.

MASONIC HALL, GAIETY RESTAURANT.—The Gaiety Restaurant, the latest addition to those luxurious palaces which cater for the well-to-do Londoner, has just been opened. The building forms part of the same block with the Gaiety Theatre, and the architects, Messrs. Runtz & Ford, have produced a fine piece of modern street architecture. Among the attractive features of the restaurant is the Masonic Hall, a fine room on the second floor, for the decoration of which Mr. W. J. Neatby is responsible. The hall is surrounded on three sides by a series of arches, supported by coupled Byzantine columns with shafts of light-brown marble. The arched ceiling terminates at the far end in a semi-dome, which is decorated with a fine fresco painting by Mr. Neatby. Another by the same artist occupies most of the other end of the hall. This type of mural decoration has always been found especially suited to the Byzantine style of architecture, and the result here is entirely pleasing. The colour scheme is white and gold, finely relieved by the rich brown of the marble column shafts and the ceiling, decorated with raised plaster ornaments picked out in red and blue, is rich yet restrained. The motif of the plasterwork is evidently furnished by the Masonic symbols. The electric fittings are in heavy bronze, the pendants, of the same type as the bronze oil lamps used in Eastern Mosques, harmonise well with the rest.

CHIEF FIRE STATION, MANCHESTER.—The new chief fire station at Manchester is now in course of erection. The building, which is bounded by London-road, Whitworth-street, Fairfield-street, and Minshull-street, will rise to a height three stories, and will be ranged along the four thoroughfares named. In the centre will be an enclosed space reserved to the firemen for dwelling purposes. There will be an engine-house for seven engines, stabling for the horses, residential quarters for the officers and men, a recreation-room, and a tower, 90 ft. high, for the drying of the hose pipes. Besides its main purpose, provision will be afforded in the building for a branch police station, court-rooms for the city coroner, and offices for the staff of the gas-meter testing department. The police station will have a frontage to Whitworth-street and Minshull-street, and the coroner's court and gas-meter testing office will be entered from London-road and Whitworth-street, respectively. The architects are Messrs. Woodhouse, Willoughby, & Langham, of Manchester. The material selected for use is tawny terra-cotta, faced generally with red plaster Accrington brick. The estimated cost of the building is 85,000*l*. Messrs. J. Gerrard & Sons, of Manchester and Swinton, are the building contractors, Messrs. Normanton & Sons being responsible for the foundations up to the ground level.

PUBLIC LIBRARY, ABERDEEN.—The new public reading-room and the extended reference-room, in the Aberdeen Public Library, has just been opened. The architects are Messrs. Brown & Watt (who were the architects for the original buildings). The style of the extension is Renaissance, in keeping with the character of the original building. Mr. James Smith has acted, under the architects, as consulting engineer in connexion with this part of the work. The work has been carried out by the following contractors:—Mason work, Messrs. R. Beattie & Son; carpenter work, Mr. George Jamieson; slater work, Mr. G. Farquhar; plaster work, Mr. James Simpson; plumber work, Mr. James Monro; painter and glazier work, Mr. W. L. Leslie; ironwork and heating and ventilating apparatus, Mr. J. A. Sangster; electric installation, Messrs. Claud Hamilton, Ltd. (Mr. Marr, consulting engineer); alterations on reference department and additional furnishings for reference and reading-rooms, Messrs. M'Haffie & Brown.

CARDIFF WORKHOUSE INFIRMARY.—On the 12th inst. additions to the Workhouse Infirmary, which provide accommodation for the nurses of the staff, were opened. The additions, which have cost about 3,500*l*., have been carried out in Newbridge stone, with Bath stone and brick facings, from designs by Mr. Edwin Seward, architect, Cardiff. The additions have included the adding of a story to the central ward. There is a large exterior verandah with staircases leading to the ground outside. There is accommodation for thirty nurses. The work has been carried out by the contractor, Mr. G. Hallett.

BOATHOUSE, HULL.—The new premises of the Kingston Rowing Club were opened on the 13th inst. The designs for the work were prepared by Mr. T. B. Atkinson, architect.

SANITARY AND ENGINEERING NEWS.

THE VICTORIA FALLS BRIDGE.—According to a report received from Sir Charles Metcalfe, the cantilever bridge over the Zambesi river at Victoria Falls will be completely riveted, painted, and finished by about the middle of next month. Work is already so far advanced that railway trucks can be taken across the bridge for the conveyance of permanent-way material for the northern part of the line. Until recently all such materials were carried across the gorge by means of the electric transporter, which was also employed for conveying the separate parts of locomotives and trucks.

MERSEY'S TRANSPORTER BRIDGE.—On the 9th inst. Mr. John J. Webster (chief engineer of the scheme), Mr. L. H. Chase (resident engineer), and Mr. F. H. Stables (secretary to the Bridge Company) were the chief passengers on what was said to be an unofficial trial trip of the car of the Widnes and Runcorn Transporter Bridge Company. The passage from Runcorn to Widnes occupied 4 min. 10 sec. This could have been easily reduced by the application of more power, but the test was not for speed but smoothness of working, and Mr. Webster declared it quite satisfactory. The return journey was also accomplished without the least hitch. The car is a platform 55 ft. long by 24 ft. wide, and is capable of holding four two-horse waggons loaded and 300 passengers. There is a shelter for passengers. The bottom of the car is 12 ft. above high-water level, and it clears the Ship Canal wall by 4 ft. 6 in. The motive power is electricity. The car is suspended by steel wire ropes from a trolley 77 ft. long, which runs upon rails on the under side of the girders of the bridge. The trolley is carried by sixteen wheels on each rail, and is propelled by two electric motors of about 35 h.p. each, the electricity being generated by a 70-h.p. gas-engine on the Widnes side. The car can be brought up within its own length when travelling at full speed. The regulation time for crossing the river is 2¼ min.—*Liverpool Post.*

THE ROYAL SANITARY INSTITUTE.—At an examination in sanitary science as applied to buildings and public works held in London, May 5 and 6, twenty-four candidates presented themselves, and the following nine candidates were granted certificates:—W. M. Dunk, Folkestone; H. N. Gray, Commercial-road, London; A. M. Henniker, Canterbury; E. Nugent, Balham; G. H. Reynolds, Folkestone; E. Y. Saunders, Lowestoft; J. L. Seden, Wood Green; R. A. Skelton, Slough; and T. J. Welsh, Shorncliffe. ——The following new members have been elected: *Fellows*—F. W. Clark, M.D. (Sanitary Board Offices, Hong Kong); Major H. P. G. Elkington (Farnborough). *Members*—J. B. Anderson, M.D. (Port Health Officer, East London, South Africa); Benjamin Ball (Borough Engineer and Surveyor, Nelson); Sir Lauder Brunton, M.D., F.R.S.; W. H. Elce (Borough and Water Engineer, Bacup); T. Robinson (Lecturer on Hygiene, Cheshire County Council, Hoylake); W. Burn (Sutton-in-Ashfield); Colonel H. E. R. James, F.R.C.S. (Royal Army Medical Corps); R. Laurie, M.D. (Derby); K. Lutoslawski, M.D. (Warsaw); N. Maughan (Drainage Engineer, Bombay); H. Wood (City Engineer's Office, Norwich); P. A. Cunningham (H.M. Naval Yard Extension, Hong Kong); W. J. Goode (Wellington); W. T. Hughes (Wolverhampton); E. M. Longsdon (Bakewood). *Associates*—S. Beales (Timperley); W. Bentley (Bolton); H. Bintcliffe (Halifax); C. de Lucey (Manchester); Miss Jane Dickinson (Lytham); A. E. Green (Amble); J. Haigh (Morecambe); A. W. Hobbs (New Maldon); W. Hooley (Montreal); T. B. Howarth (Levenshulme); P. C. King (Saltash); T. A. Linfoot (Nelson); Miss E. M. E. McInerny (Saltash); C. R. Miller (Handsworth); J. Richardson (Leeds); J. Tolmaer (Blackpool); F. Williamson (Leeds).

SEWERAGE SCHEME, ILKESTON.—A special meeting of the Ilkeston Town Council was held on the 8th inst. for the purpose of receiving a report from Messrs. Willcox & Raikes, engineers, Birmingham, with reference to a sewage disposal scheme for the borough. Mr. Raikes gave particulars of the scheme. Having examined the district thoroughly, they had selected a piece of land at the extreme south corner of the borough as the most suitable site. The local conditions rather complicated the question of sewage disposal, because they had to comply with the Local Government Board requirements, which stipulated that, no matter what system of filtration they adopted, the sewage must eventually be turned on to the land; or, in the event of land being dispensed with, the area of the filters must be increased considerably. About 9 acres of land would be required for the construction of the works, and an additional 30 acres for drainage. The land in question was most unsuitable for irrigation purposes. Taking the requirements to meet a population of 30,000, the cost of the scheme would be about 30,000*l*. If they had to provide for double the area of filters instead of land they would have to add a further sum of 15,000*l*., making the total estimate approximately 45,000*l*. After some discussion, it was decided to adjourn the business for a fortnight.

NEW BRIDGE, LOWER KERSAL, MANCHESTER.—To facilitate access between Lower Kersal and Manchester, a new bridge is being built over the Irwell. The structure is of stone, 18 yds. wide, and it will cost about 10,000*l*. The engineer is Mr. Lionel B. Wells, of Manchester.

APPOINTMENT.

LEEDS.—The Council of Leeds University have appointed Mr. James Gilchrist to the lecturership in civil engineering, which became vacant on the death of Dr. George Wilson. Mr. Gilchrist is a graduate in science of the University of Edinburgh, with first-class honours in engineering.

FOREIGN.

FRANCE.—The new curator of the Château Malmaison, M. Pallu de la Barrière, is still occupied in the reconstitution of the original state of the house when it was the residence of Napoléon. He is at present endeavouring to collect all the furniture of the Empress Josephine. But the museum (for such it will now be) cannot be open to the public before the end of the year.——M. Bonnat has definitely accepted the position of Directeur of the Ecole des Beaux-Arts, but will not enter on his duties till October.——Mdme. Benjamin-Constant, the widow of the eminent painter, has presented to the City of Paris a large painting of a scene in Morocco, "Le Jour des Funérailles," which was in the Salon of 1889. The picture will be exhibited at the Ecole des Beaux-Arts.——An exhibition of the works of Whistler has been opened at the Ecole des Beaux-Arts; it includes, like the recent London exhibition, paintings, sketches, and etchings. It is exciting much interest in Paris.——A committee has been formed to erect a monument, at Moret, to the landscape painter Sisley; and the city of Marseilles proposes to erect there a monument to another exceptional painter, Monticelli.——A large Baths establishment is shortly to be built at Contréxeville (Vosges), to include several hotels, a hydropathic house, a casino, and a theatre. M. Cavé is the architect appointed for this important work, the cost of which is estimated at 3,500,000 francs.——MM. Rabjean & Gilles, architects, of Cholet, have been commissioned to build for that town a new hospital and and an asylum for aged men.——There is some talk of the construction of a canal from Bordeaux to Bayonne, to be continued to connect with the Adour at Dax.——The Prefecture at Quimper is to be altered and enlarged, from the plans of M. Vally, architect, of Landernau. ——The banks of the Seine at Havre are to be put into communication by a train ferry opposite Villequier. The cost of this operation is estimated at 8,750,000 francs.——A new masonry bridge is to be built over the Garonne at Malanze, near Montauban.——The jury in the competition opened at Fontainebleau for a municipal theatre has awarded the first premium to MM. Fernand Lucas and Paul Marion, architects, of Paris.——The death is announced of the sculptor Charles Cordier, a former pupil of Rude, who made his *début* at the Salon of 1853 with some busts treated in polychromy in bronze and marble. He was the author of the statues of Maréchal Gerard and of Ibrahim Pacha, and of the monument erected in Mexico in memory of Christopher Columbus.

QUEEN VICTORIA MEMORIAL, BANGKOK.—The memorial statue to the late Queen Victoria, erected by public subscription, in front of the British Legation at Bangkok, in Siam, was unveiled on March 23. The bronze statue of the Queen, represented as seated upon a throne, crowned, bearing orb and sceptre, and arrayed in her robes of State, is a reproduction of that at Winchester, sculptured by Mr. Alfred Gilbert, R.A.

SOUTH AFRICA.—The English church at Middelburgh has recently been enlarged from plans prepared by Mr. Hugh J. Scott, architect, Middelburgh. The contractors were Messrs. Hull & Innes.

MISCELLANEOUS.

PROFESSIONAL AND BUSINESS ANNOUNCEMENTS. —Mr. W. J. Devlin, architect, has removed from 6, John-street, Adelphi, to 12, Buckingham-street, Strand, W.C.——Messrs. George Wragge (Manchester) have taken additional premises in Shaftesbury-avenue to enlarge their present London show-rooms; their numbers will now be 209 and 211, Shaftesbury-avenue.

VENETIAN MOSAICS.—There has lately, writes Mr. Consul de Zuccato, been a great demand for Venetian mosaics for internal and external mural decorations in Europe and America. The new system of exporting ready-made mosaics has given a great development to this branch of trade. As already reported, the cartoon to be copied is exhibited before the artists on the spot, who fix the tesseræ on that section of the cartoon assigned to them with common paste; when each workman has executed his work the mosaic is put together and again divided into sections, each section being numbered and carefully packed. The key-plan forwarded to the consignee will enable him to have all the sections pressed in the cement freshly laid on the wall, and, when the cement has properly hardened, the paper on which the tesseræ have been pasted is removed, and a perfect mosaic is seen. I am told, adds Mr. de Zuccato, that mosaic art is now carried on in the United Kingdom, and that orders for the pieces of enamel or tesseræ, to be made according to the instructions of the firms in the United Kingdom, are sent here. Purchasers of such enamels must be careful in entrusting their orders to reliable firms, and not look to cheap pieces, which, in the end, would prove dearer to them. As the enamel pieces are sold by weight, when they are composed of coarser and heavier materials a smaller number of pieces per unit results, and a consequent smaller surface can be covered. Besides, the quality of the colours used in the composition of the enamels has also a great influence on the beauty and durability of the mosaics.

AMSLER'S PLANIMETER.—The planimeter, invented by Professor Joseph Amsler, of Schaffhausen, is certainly the most convenient and most accurate instrument for measuring small areas of irregular outline. As most of our readers know, this beautiful appliance performs the apparently impossible feat of recording the area of any irregular figure by simply measuring its boundary. Surveyors are by no means unanimous with regard to the desirability of applying the planimeter to land area computation. For computing areas from small scale maps, and areas of very irregular outline, the instrument will give more accurate results than can be obtained by any other means, but, for moderately large areas, surveyors generally prefer to take off quantities either by triangles or with the computing scale. With the object of popularising the planimeter, Mr. William Codd has written a little book, published by Messrs. E. & F. N. Spon, giving simple directions for the use of the instrument, and containing the recommendation that it should be applied in connexion with his "Land Area Tables." to be obtained from the same publishers. These tables are intended to save the trouble of converting square inches of map surface to acres, roods, and perches, but they will not entirely remove all objections to the use of the instrument by land surveyors. The book concludes with a clearly-written explanation of the working principles of the planimeter.

PARISH CHURCH, NORTHFLEET, KENT.—Owing to the recent fall of part of the roof, which it is feared may be speedily succeeded by further dilapidation, the fabric is in a dangerous condition, and it is hoped that funds will be forthcoming for its reparation. St. Botolph's Church, Northfleet, is one of the oldest in the county, having been given to St. Andrew's convent, Rochester, by Archbishop Anselm. It comprises features of various styles of architecture, though mainly of the later decorated period, and has a XVIIth century western tower. The nave was restored about sixty years ago, and the chancel twenty years afterwards. The chancel contains the richly-ornamented brass of Peter de Lacey, rector, who died in 1375, and rebuilt that portion of the church. There is also the alabaster tomb of Dr. Edward Browne, physician to King Charles II., and author of a work describing his travels in Hungary.

EXTENSION OF GAS WORKS, HAMILTON.—A new retort-house, containing six benches of six retorts each, is being added to the Larkhall Gas Works. They are to be built on the back to back principle, and on the regenerative system. Besides the new retort-house, a retiring-room is provided for in the plan for the accommodation of the workers, where meals can be taken away from the heat of the house. The contractors for the various works are:—Building, Messrs. R. Paton & Sons; retort benches, Messrs. James Brown & Co., Hamilton; roof and inside ironwork, Messrs. Henry Balfour & Sons, Ltd., Leven; joiner work, Messrs. William Wilson & Sons; slater work, Mr. James Rowatt; plumber work, Mr. John Dykes. The engineers for the work are Messrs. Gillespie & Son, Glasgow.

IMPORTS OF FOREIGN CEMENT INTO CONSTANTINOPLE.—An official report received at the British Foreign Office from Constantinople contains the following among other passages:—There being few other openings for local capital here, building is extremely popular with the native investor, and each year sees the erection of new blocks of flats in every quarter of the city. The annual importation of foreign cements is about 18,000 tons. Of the cement imported from France, about 80 per cent. is natural and 20 per cent. artificial. The cost of the latter is about 15 per cent. higher. A large quantity of French cement is brought here in sailing vessels from Calcis. The freight is about the same as from Marseilles, but there is a saving of 2 francs per ton Calcis to Marseilles; and at Constantinople the sailing vessel can moor alongside the consignee's wharf and discharge into his store, thus saving handling, quay dues, and lighterage. The saving by delivering in sacks to be returned is another item in favour of the cheap French cement, which will always keep the bulk of the market. Nevertheless, there is always a demand for a limited quantity of the higher priced, but better quality, British article. The present quantity imported of about 1,000 tons per annum could be doubled if a regular weekly delivery could be relied upon during the period from March to December. At present the British cement is brought mostly by the steamers from London, and the arrivals are very irregular. British cement is also at a disadvantage through the general use of the name "Portland." Ignorant buyers who see the label "Portland" on casks of inferior foreign cement are sometimes under the impression that they are buying the British article. This might, perhaps, be remedied by judicious advertisement of tests applied to British as compared with other cements. The British article cannot compete on this market in point of cheapness; its one chance is its reputation for quality. It might be worth while to send out someone to examine the local conditions here, with a view to pushing sales. Terms here are, in nearly all cases, bills at three months, or discount for cash against bill of lading. Longer credit is given by the Hungarian shippers. The price of British cement works out at about 1*l.* 14s. per ton f.o.b. London, with freight 15s. 6d., total c.i.f. Constantinople, 2*l.* 9s. 6d. per ton, or 62 francs.

THE MARBLES OF TUSCANY.—Reporting on the mineral wealth of the provinces of Siena and Grosseto, in Italy, the British Consul-General mentions that the marbles found there are unrivalled in Italy for their beauty and their singularly bright colours and varied tints. To take only the principal quarries there are the "old yellow" and the "Broccatello" of the well-known quarries of Montarrenti; the red marbles of Gerfalco and Montieri; the veined and yellow marbles of Gallena and Meletro; the "Persichino" of Caldana; the marbles of Porzia and Castelnuovo, near Montalcino; the black marbles of Montieri and the greenish black of Vallerano; the Trequanda red; and, last but not least, the Broccatello red, lately discovered near Ravi. Many of the columns, altars, and floors of the Tuscan cathedrals, which are the admiration of the world, were made with these marbles. The Montarrenti marbles enjoy a world-wide reputation, and have a ready sale both in Europe and America, prices varying from 140 lire to 230 lire per ton according to the size of the blocks. Efforts are now being made to promote a larger exportation of the other marbles, and a great development has lately taken place in the working and sale of the yellow marbles, the demand for which is daily increasing abroad. The Broccatello quarries, discovered at Ravi some years ago, are remarkable for their extent, and for the rich quality as well as the hardness and compactness of the marble found there, which is of a bright ruby colour. The deposits of marble have the advantage of being covered only by a thin layer of earth, and of being accessible by a good road of 300 mètres, which connects them with the provincial highway at a point about 7 kilomètres from the Gavarrano station. These quarries also contain both grey and red marbles of various shades. Black marble is also abundant in the district.

IMPORT OF WORKS OF ART TO NEW YORK.—It is pointed out in a recent report by Sir P. Sanderson on the trade, etc., of New York, that, in virtue of reciprocity agreements concluded with France, Germany, Italy, and Portugal, paintings in oil and water-colours, pastels, pen-and-ink drawings, and statuary can be imported at a lower rate of duty from those countries than from the United Kingdom or any country which has not concluded such an agreement. The largest importation is from France, with the United Kingdom coming next in order, and the relative proportions to the whole were, in 1904, France 43 per cent., and the United Kingdom 23 per cent.

BRITISH FIRE-PREVENTION COMMITTEE.—The Committee expect to be able to open their new testing station on June 21, and, owing to the number of tests pending and the additional testing-chambers erected, they propose conducting the tests in more rapid rotation than hitherto. The programme as fixed at present for the four first series of testing operations is as follows:—First testing day—The National Fireproofing Company's floor test; The Gilmour Door Company's door test (two doors); Messrs. Pilkington Brothers' wire glass skylight test (fifth test). Second testing day—The floor test of a concrete floor with

Messrs. Skelton's broad flange girders; Messrs. Gibson & Co.'s roller shutter door test; The National Fireproofing Company's partition test. Third testing day—Messrs. Faber's floor test; Messrs. Asbestic Brick & Tile Company's partition test (second test). Fourth testing day—The New Expanded Metal Company's floor and girder coverings test (second test).

BRITISH STANDARD STEEL FOR SHIPBUILDING.—Report No. 13, issued last week by the Engineering Standards Committee, is almost identical with the specification for steel for marine boilers, published in March last, the differences that occur arising merely out of a few small variations of practice. At the end of the specification, however, there is a clause providing that, under certain circumstances, the makers may be trusted to comply with the specified requirements and to give certificates to that effect. But should subsequent tests by the inspector give unsatisfactory results, the whole of the material involved is to be rejected. This clause will certainly have a tendency to simplify and expedite the process of manufacture, and there is no reason why it should not be added to the companion specification for steel for marine boilers.

THE DARTMOOR ARBITRATION.—Mr. A. L. Ryde has issued his award, as arbitrator, in the matter of Rendel and others *v.* the Secretary of State for War respecting a claim preferred against the Crown for the compulsory sale of Retford and Doe Tor farms, near Lydford, appertaining to the Hamlyn estate, and of rights in regard to about 3,000 acres of Willsworthy manor. The claimants' valuation, based upon the potential value of the property as a granite quarry and as a site for an asylum, amounted to about 23,000*l.*; that of the War Office was for an average of 2,450*l.* Mr. Ryde's award is for 5,000*l.* Mr. Henry Drew and Mr. C. W. Stephenson were arbitrators for the claimants and the War Office respectively; the principal experts engaged for the Crown were Mr. Arthur Body, Mr. A. S. Rendell, Mr. James Green of Messrs. Weatherall & Green, and Mr. W. H. Elwell, Consulting Surveyor to the War Office.

SOMERSBY ESTATE, LINCOLNSHIRE.—In July will be offered for sale at the Mart a freehold estate of about 1,125 acres, situated in the parishes of Somersby, Ashby Puerorum, and Enderby, in the parts of Lindsey. The property to be sold comprises Somersby House, the birthplace and the home in his youth of the late Lord Tennyson, whose father was rector of the parish of Somersby. The house has been preserved practically intact as it was in the earlier years of last century, and on the estate may be identified some features of the landscape described in Tennyson's poem of "The Brook."

STRAND SCAFFOLD ACCIDENT.—On the 15th inst., whilst workmen employed by Messrs. Floyd & Hayman, builders and decorators, of Adelphi Arches, were painting the outside of the premises occupied by the *British Medical Journal*, which are situated at the juncture of Agar-street with the Strand, an unfortunate accident occurred, three painters falling some distance to the ground, and sustaining severe injuries. The injured men were removed to the Charing Cross Hospital, where their injuries were attended to. The scaffold which was in use is described as a "patent automatic safety scaffolding." The scaffold consists of a cradle working between two upright poles, which can only be raised or lowered 6 in. at a time.

QUEEN VICTORIA MEMORIAL, SHEFFIELD.—The memorial of the late Queen, which has been erected at Sheffield, was unveiled on the 11th inst. by H.R.H. Princess Henry of Battenberg. The height of the monument is 25 ft., the statue is in bronze, as are also the groups on each side of the pedestal. One of these is symbolical of Labour, the other of Maternity. On one side of the pedestal, carved in the stone, is a group with figures emblematical of Courage, Justice, Truth, and Charity; and on the other side of the pedestal is a carving of St. George and the Dragon. Mr. Alfred Turner, whose design was selected in competition, is responsible for the work.

CAPITAL AND LABOUR.

EMPLOYMENT IN THE BUILDING TRADES.—The returns received from sixty-nine employers' associations show that employment was dull generally. In the provinces it was slightly better on the whole than a month ago; in London, worse. Employment generally continued worse than a year ago. Employment with carpenters continued dull, and was worse than a year ago. The percentage of unemployed trade union carpenters and joiners was 7·5 at the end of April, as compared with 7·9 in March and 6·1 in April, 1904. With plumbers employment was slightly better than a month ago, but worse than a year ago. The percentage of unemployed trade union plumbers was 11·2 at the end of April, compared with 11·8 at the end of March and 9·9 in April, 1904. With bricklayers employment generally was dull, but in certain districts it was slightly better than a month ago. With masons it was bad, and much the same as a month ago. With plasterers employment was bad in England, quiet in Scotland, and worse than a month ago. With slaters and tilers employment was bad in England, and fair generally in Scotland. With painters employment was fairly good, and better than a month ago. With builders' labourers it was dull.—*Labour Gazette.*

THE NEWCASTLE BUILDING TRADE DISPUTE.—Mr. Leeson has arranged a conference between the masters and the men, together with the architects, at his offices in Mosley-street, Newcastle. Each trade affected has appointed two delegates, and the employers have elected a similar number.

THE GLASGOW DISPUTES.—The patternmakers on strike in the Clyde district reported on the 15th inst. that they had begun their fifth week with quite as much determination to hold out for the advance of wages as at first. They believed that the employers were feeling pretty much the lack of men, but the masters, on their part, stated that the great majority of them were keeping their shops going fairly well, and that there was no chance whatever of them giving in. The men continue to sign the strike books daily at different rooms in the district, but they are having no mass meetings.—The house joiners on strike in Glasgow met on the 15th inst. as usual in the Albion Halls. They reported that 175 masters had now signed their by-laws, and that the number still on strike was less than 650. The employers stated that men were still obtainable at the reduced rates, and that after the term work was over the number of unemployed would be increased.—The Glasgow plumbers reported that a few more masters had signed their by-laws, but that otherwise the dispute remained as it was last week. There were still slightly over 300 men on strike.

EDINBURGH JOINERS' STRIKE.—At a meeting on the 15th inst. of the joiners on strike in Edinburgh, it was reported that 101 masters had now yielded to the operatives' demands.

PATENTS OF THE WEEK.

APPLICATIONS PUBLISHED.*

13,963 of 1904.—R. S. ALLAN: *Machines for Grooving or Trenching Wood.*

A machine for grooving or trenching wood, consisting in the combination with a fixed frame of a reciprocating work-carrying table adapted to have an oblique movement, springs adapted at one end directly or by extensions to a point or points of the reciprocating frame, and connected at their other end to one of a number of holes on the fixed frame for the purpose of enabling the said springs to be adjusted to pull at or about in alignment with the oblique movement of the reciprocating frame.

11,791 of 1904.—J. J. LAND: *Knobs and their Attachment to Spindles for Lock and Latch Furniture.*

One knob is permanently secured to the end of a square spindle which is threaded at its angles over a portion of its length. The other knob allows the spindle to just pass through a square hole in its neck and out through a larger round hole at the face of the knob. Fitted in this knob through the round hole is a hollow cylindrical sleeve, which is threaded inside so as to engage the thread of the spindle, hence the knob can just slide over both the spindle and the sleeve. There is a flange at the end of the sleeve which prevents the knob moving right off the sleeve. In fixing, the fast knob and spindle are put in position through door and lock. The other knob is then passed on to the projecting spindle. The sleeve is passed through the round hole of the knob and engages the thread of the spindle, hence turning the sleeve permanently secures both knobs in their proper position.

14,178 of 1904.—J. ASTON: *Preventing Shocks in Water-service Pipe.*

This invention relates to apparatus for preventing concussion in water-supply pipes when the tap or valve is suddenly closed, and consists of an air chamber or vessel which may be attached direct to a suitable extension of the valve body or to a separate tee-piece secured in any desired portion of the supply pipe. The neck or inlet opening to the air vessel is fitted with a plug in which is formed a relatively small bell-shaped passage having an area of about one-twentieth of area of the supply pipe, the air vessel itself being of sufficient capacity to correspond to size of pipe and to the average pressure at which the water is conveyed therein, whereby an elastic cushion is provided to absorb the momentum existing in the column of water at the moment when its flow is arrested.

24,576 of 1904.—A. G. BAKER: *Locks.*

A cylindrical mortice lock, comprising two semi-cylinders. Corresponding securing lugs thereon respectively, a spring-actuated bolt adapted to slide between the cylinders at one end thereof, a handle piece rotatable at the other end thereof, connecting means between the handle piece and the rear end of the bolt whereby rotation of the handle piece retracts the bolt, and tumbler mechanism whereby under the influence of a key the bolt is stopped from retracting.

2,556 of 1905.—W. E. MIKSCH: *Wall and like Tiles or Plates.*

In a wall cover, tile, or plate forming the subject of a prior patent, No. 4,905 of 1903, the next plate, when placed against a set of plates, is held fast by a hook-shaped wall nail, the set plate being held by the edge of the new plate engaging with a groove in the set plate. If in place of a hook-shaped wall nail, that is to say, of a wall nail with a head projecting only to one side, a wall nail is used with a head projecting on both sides, for instance, with a flat or round head, then both plates can be held fast by the one wall nail, if, as in this invention, the set plate is provided on the lateral surface facing the nail with a projection forming an abutment for the wall nail, and projecting under its head.

25,475 of 1904.—W. BOURNE: *A Device for Cleaning Windows, and the like.*

This relates to a device whereby the cleaning of the exterior of windows can be performed inside of an apartment, thus avoiding the risks involved by standing or sitting outside the windows, and facilitates the cleaning of those portions of windows which would otherwise require the employment of ladders or steps. This device consists of a number of pieces of wood, or other suitable material, of an equal size, having three holes bored at equal distances in each, by means of which holes the pieces are fastened together so as to form a lattice-like device capable of extension or contraction. It is intended to attach to one end of this lattice-like device a clip whereby a cloth or pad can be attached. In employing the device, the lower sash of the window is partly opened, the device is passed through to the outside of the window, the hands grasping the end of the device furthest from the cleaning cloth or pad, and by alternately extending and contracting the device, the pad or cloth is caused to pass over the surface of the glass of the window which is thus cleaned.

26,894 of 1904.—J. BARDSLEY: *Door Checks and Closers.*

A door check and closer, comprising an exterior casing, a spindle therein for connexion with the door, and a yoke, rod, cylinder, piston, and spring, in one connected mechanism extending horizontally within the casing and at right angles to said spindle, said cylinder being adapted to move open the exterior surfaces of said piston, which is normally stationary, combined with means for moving said yoke, rod, and cylinder in one direction from said spindle, and means connected with said piston for adjusting the same and said connected mechanism laterally on the arc of a circle whose centre is the said spindle.

* All these applications are in the stage in which opposition to the grant of Patents upon them can be made.

TO CORRESPONDENTS.

NOTE.—The responsibility of signed articles, letters, and papers read at meetings rests, of course, with the authors.

We cannot undertake to return rejected communications; and the Editor cannot be responsible for drawings, photographs, manuscripts, or other documents, or for models or samples, sent to or left at this office, unless he has specially asked for them.

Letters or communications (beyond mere news items) which have been duplicated for other journals are NOT DESIRED.

All communications must be authenticated by the name and address of the sender, whether for publication or not. No notice can be taken of anonymous communications.

We are compelled to decline pointing out books and giving addresses.

Any commission to a contributor to write an article, or to execute or lend a drawing for publication, is given subject to the approval of the article or drawing, when received, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.

All communications regarding literary and artistic matters should be addressed to THE EDITOR; those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and *not* to the Editor.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

May 2.—By LEE & FARR (at Slough).

Farnham Common, Bucks.—"The Chesters" and 2 a. 1 r. 26 p., f., y.r 45*l.* £810

May 3.—By BEALE & CAPPS (At Notting Hill).

Notting Hill.—259, Cornwall-rd., u.t. 57½ yrs. g.r. 8*l.*, y.r. 40*l.* 400

5, Blagrove-rd., u.t. 58 yrs., g.r. 7*l.*, e.r. 40*l.* 350

Harlesden.—22 and 24, Queen's-rd., u.t. 81½ yrs., g.r. 8*l.* 8s., w.r. 62*l.* 8s. 400

May 5.—By HENRY ROBERTS (at Portmadoc).

Penmorfa, Carnarvon. — "Gwernddwyryd Farm," 109 a. 2 r. 21 p., f., y.r. 100*l.* 2,500

By WYATT & SON (at Havant).

South Hayling, Hants.—Part of "Highworth Mead," 4 a. 2 r. 16 p., f. 150

Manor-rd. freehold school and cottage, p... 180

Commercial-r., two cottages and four fields, 33 a. 1 r. 1 p., f. 2,500

Beach-rd., a block of freehold land, 24 a. 1 r. 2 p. 2,400

Selsmore-la., three freehold fields, 4 a. 1 r. 30 p. 360

"Salterns' Fifteen Acres," 10 a. 0 r. 14 p., f. 250

Freehold field with dock slip, 9 a. 3 r. 11 p. 355

"Croucher's Piece Field," 5 a. 1 r. 2 p., f... 400

May 8.—By JOHN BOTT & SONS.

Herne Hill.—15, Woodquest-av., u.t. 85¼ yrs., g.r. 11*l.* 10s. 800

By P. & G. GEEN.

Soho.—185, Wardour-st. (s.), area 900 ft., f., y.r. 140*l.* 3,600

By PHIBBS GIBSON & CO.

Forest Hill.—6, Therapia-rd., u.t. 75 yrs., g.r. 6*l.* 10s., y.r. 42*l.* 445

By A. SAVILL & SONS.

Tottenham.—King's-rd., etc., f.g.r. 25*l.*, reversion in 17 yrs. 1,530

Ealing.—Marlborough-rd., "Spencer Villa," f., y.r. 36*l.* 560

By WEATHERALL & GREEN.

St. John's Wood.—Queen's-rd., i.g. rents 107*l.*, u.t. 31½ yrs., g.r. nil 1,690

By THORNBARROW & CO. (at Shap).

Shap, Westmorland.— Hudson's-ter., three freehold houses, also a block of farm buildings and 8 acres, y.r. 58*l.* 12s. 920

Three houses, farm buildings, and 2 a. 3 r. 36 p., f. and c. 700

May 9.—By BEADEL, WOOD, & CO.

Whitechapel.—119, High-st. (s.), f., y.r. 120*l.* 3,100

By EDWIN EVANS.

Wimbledon.—Plough-la., a freehold building estate, 9 a. 1 r. 0 p., p. 4,300

Leyton.—Millais-rd., f.g. rents 78*l.*, reversion in 90½ yrs. 1,800

Bromley, Kent.—High-st., f.g.r. 22*l.*, reversion in 65 yrs. 560

Norwood.—St. Louis-rd., f.g.r. 11*l.* 10s., reversion in 64½ yrs. 245

New Malden, Surrey.—Lime-gr., f.g.r. 10*l.* 10s., reversion in 63½ yrs. 255

Poplar-gr., f.g.r. 18*l.*, reversion in 64 yrs. .. 470

Anerley.—Worbeck-rd., six freehold building Plots 240

Bow.—58, St. Stephen's-rd., f., w.r. 45*l.* 10s. 450

Fulham.—2 and 6, Salisbury-pavement (s.), u.t. 88 yrs., g.r. 34*l.*, y.r. 185*l.* 2,295

Hampstead—Pond-st.. "Warwick House," f., p. 1,250

Plumstead, Kent.—276, 278, and 280, High-st., u.t. 54½ yrs., g.r. 6*l.*, w.r. 70*l.* 4s. 620

By KNIGHT, FRANK, & RUTLEY.

Regent Street.—50, Conduit-st. (s.), area 2,365 ft., corporation lease, g.r. 9*l.* 7s. 6d., fine 65*l.* 12s. 6d., y.r. 300*l.* 14,000

By G. PEARCE & SONS.

Hoxton.—15 and 16, Northport-st.. u.t. 30½ yrs., g.r. 9*l.* 10s., y.r. 72*l.* 545

Barnsbury.—57, Albert-st., u.t. 42½ yrs., g.r. 2*l.*, y.r. 34*l.* 295

Canonbury.—24, Canonbury-sq., u.t. 14 yrs., g.r. 23*l.*, e.r. 60*l.* 155

Tottenham.—17 and 19, Willoughby Pk.-rd., f., w.r. 70*l.* 4s. 635

By ROGERS, CHAPMAN, & THOMAS.

Barnes.—3, Northumberland-av., u.t. 67 yrs., g.r. 24*l.*, y.r. 90*l.* 910

Westgate-on-Sea, Kent. — The "Westcliff Hotel," f., y.r. 385*l.* 7,100

By WHITE, BERRY, & TAYLOR.

Belgravia.—66, Ebury-st., a profit rental of 60*l.* for 18 yrs. 560

By C. W. DAVIES & SON.

Holloway.—34, Thane-villas, u.t. 46 yrs., g.r. 7*l.* 7s., e.r. 38*l.* 320

71, 73, and 75, Eden-gr., f., y.r. 94*l.* 1,000

Islington.—57, Prebend-st., u.t. 22 yrs., g.r. 4*l.* 12s., e.r. 46*l.* 225

Barnsbury.—37, College-st., u.t. 11 yrs., g.r. 7*l.*, e.r. 45*l.* 200

Caledonian-road.—83, Blundell-st., u.t. 46½ yrs., g.r. 5*l.* 10s., y.r. 32*l.* 325

Finsbury Park.—9, Coleridge-rd., u.t. 54½ yrs., g.r. 9*l.*, y.r. 48*l.* 380

St. Luke's.—34, Baltic-st., f., w.r. 36*l.* 8s..... 495

King's Cross.—189, King's Cross-rd. (s.), f., w.r. 65*l.* 505

By ORGILL, MARKS, & BARLEY (at Masons' Hall Tavern).

King's Cross.—Liverpool-st., "The Argyle," p-h., u.t. 30 yrs., y.r. 150*l.*, with goodwill 10,470

By G. B. HILLIARD & SON (at Witham).

Witham, Essex. — Newland-st., "Avenue House," with cottage and stabling, f., e.r. 75*l.* 1,750

May 10.—By FIELD & SON.

Brixton.—91, Angell-rd., u.t. 53¾ yrs., g.r. 10*l.* 10s., e.r. 60*l.* 650

Rotherhithe.—399 to 405 (odd), Rotherhithe New-rd, u.t. 49½ yrs., g.r. 14*l.*, w.r. 135*l.* 4s. 750

By HILLYER & HILLYER.

Epping, Essex.—1, Nicholl-rd., u.t. 99 yrs., g.r. 8*l.* 8s., y.r. 45*l.* 530

By OAKLEY, FISHER, & CO.

Holloway.—59 and 61, Kingsdown-rd., u.t. 58 yrs., g.r. 12*l.* 12s., y.r. 78*l.* 56

By ALFRED RICHARDS.

Old Southgate.—Blagden's-la., "Rookwood" and 40 a. 0 r. 25 p., f. £9,400

Blagden's-la., "Laverock," f., p. 750

Blagden's-la., freehold building land, 1 acre 470

Palmer's Green.—1, 2, 3, and 4, Elstree Villas, f., y.r. 134*l.* 1,730

By A. BOBERTSON.

Forest Hill.—130 to 136 (even), Malham-rd., f., w.r. 141*l.* 14s. 1,205

By RUSHWORTH & STEVENS.

South Kensington.—24, Astwood-mews, u.t. 60½ yrs., g.r. 11*l.* 5s., p. 200

By PHILIP STOCK.

Tooting.—22 and 24, Kellino-st., f., w.r. 88*l.* 8s. 660

DOUGLAS YOUNG & CO.

King's Cross.—35 and 37, Winchester-st. (s.), f., w.r. 93*l.* 12s. 800

Lambeth.—149 and 150, Princes-rd., f., y.r. 70*l.* 1,000

Forest Hill.—158, Devonshire-rd., u.t. 57 yrs., g.r. 6*l.*, e.r. 35*l.* 275

Clapham.—1 and 2, Chale-rd., u.t. 76 yrs., g.r. 8*l.*, w.r. 88*l.* 8s. 700

Brixton.—51, Wiltshire-rd., u.t. 57 yrs., g.r. 4*l.*, e.r. 100*l.* 900

Stamford Hill.—33, Templeton-rd., u.t. 71¼ yrs., g.r. 4*l.* 10s., y.r. 34*l.* 295

Chiswick.—15, Marlborough-cres., u.t. 69 yrs., g.r. 10*l.*, y.r. 42*l.* 420

C. M. STANFORD (at Colchester).

Ardleigh, Essex.—"Bovills Hall Estate" (including the Manor), 91 a. 2 r. 18 p., f. (in lots) 4,600

May 11.—CHESTERTON & SONS.

Chelsea.—35, Beaufort-gdns., u.t. 56 yrs., g.r. 25*l.*, p. 2,500

Hampstead-road.—No. 147 (s.). f., y.r. 120*l.* .. 2,400

24, Roberts-mews (factory), f., y.r. 50*l.* 975

Barnes.—159 and 161, Castelnau, u.t. 24½ yrs., g.r. nil, p. 675

South Kensington.—29, Earl's Court-gdns., u.t. 65 yrs., g.r. 7*l.*, y.r 50*l.* 500

By FAREBROTHER, ELLIS, & CO.

Streatham.—2, St. Leonard's-ter. (s.), u.t. 84 yrs., g.r. 39*l.*, y.r. 180*l.* 2,300

14, St. Leonard's-ter. (bank premises), u.t. 84 yrs., g.r. 39*l.*, y.r. 200*l.* 3,050

Marylebone.—122 and 124, Seymour-pl. (offices, etc.), u.t. 48 yrs., g.r. 40*l.*, y.r. 190*l.* 1,650

By FLOOD & SONS.

Notting Hill.—281, Portobello-rd. (s.), u.t. 58½ yrs., g.r. 8*l.*, y.r. 52*l.* 450

Hampstead-road.—23, Albert-st., u.t. 36 yrs., g.r. 7*l.*, y.r. 50*l.* 595

Regent's Park.—11, Gloucester-rd., and 5, Queen's-mews, u.t. 34 yrs., g.r. 10*l.* 10s., y.r. 115*l.* 1,520

By GLAZIER & SONS.

Norton Folgate.—Blossom-st., Carter's Factory Premises, area 3,260 ft., f., y.r. 75*l.* 1,550

New Southgate.—High-rd., f.g. rents 29*l.* 8s., reversion in 83 yrs. 700

Feltham, Middlesex.—Sydney-ter., etc., f.g. rents 35*l.*, reversion in 80 and 88 yrs. 720

By C. C. & T. MOORE.

Whitechapel.—39 to 47 (odd), Chicksand-st., and 26 to 34 (even), Casson-st., with timber yd., area 8,575 ft., f., y.r. 520*l.* 2s. 4,600

16 to 24 (even), Casson-st.; 42, 44, and 46, Chicksand-st.; 1 to 5, George-ct.; 1 to 7, Chicksand-pl., area 6,200 ft., f., w.r. 369*l.* 4s. 2,900

73 to 79 (odd), Old Montague-st.; 17 to 27 (odd), Great Garden-st.; 1 to 8, Mason's-ct., area 6,000 ft., f., w.r. 436*l.* 16s. 4,600

69 and 71, Old Montague-st.; 2 to 10 (even), Casson-st., with contractor's yard and stabling, area 6,500 ft., f., w.r. 253*l.* 10s. 3,200

72 to 78 (even), Old Montague-st., area 850 ft., f., w.r. 111*l.* 16s. 960

34 and 36, Dunk-st., area 2,200 ft., f., w.r. 98*l.* 16s. 1,140

Mile End.—126, 128, and 130, Skidmore-st., u.t. 25½ yrs., g.r. 12*l.*, w.r. 101*l.* 8s. 430

Leytonstone.—99, Cann Hall-rd., f., y.r. 26*l.* 300

By NEWBON, EDWARDS, & SHEPHARD.

Islington.—1 to 6, Little Pierrepoint-row, f., w.r. 153*l.* 8s. 1,400

Canonbury.—3, Canonbury-pk. North, u.t. 31 yrs., g.r. 5*l.* 10s, e.r. 55*l.* 350

Norwood. — Woodside-av., f.g.r. 24*l.* 6s., reversion in 65 yrs. 585

By STIMSON & SONS.

Holloway.—7, Tufnell Pk.-rd., u.t. 26 yrs., g.r. 9*l.*, y.r. 40*l.* 305

Forest Gate.—7 and 11, Victoria-rd., f., p. .. 720

Brixton.—49, Trinity-sq., u.t. 23 yrs., g.r. 3*l.* 12s., y.r 32*l.* 220

Peckham.—41, Meeting House-la., u.t. 31¼ yrs., g.r. 5*l.* 5s., w.r. 44*l.* 4s. 230

19A, Naylor-rd. (s.), u.t. 54¾ yrs, g.r. 2*l.*, y.r. 24*l.* 14s 220

Streatham.—Wellfield-rd., f.g.r. 10*l.*, reversion in 34 yrs. 440

Wellfield-rd., f.g. rents 6*l.*, reversion in 29 and 30 yrs. 210

41, 43, and 45, Wellfield-rd., f., w.r. 78*l.* .. 730

By WM. WESTON.

Gerrard's Cross, Bucks.—The Common, a freehold building estate, 16 acres, p. 4,500

Bayswater.—26, Porchester-rd. (s.), u.t. 33 yrs., g.r. 6*l.*, y.r. 110*l.* 1,600

Kensal Rise.—73, 77, and 79, Chamberlayne Wood-rd. (s.), u.t. 94¼ yrs., g.r. 45*l.*, y.r. 315*l.* 4,715

May 12.—By CARTWRIGHT & ETCHES.

Belgravia.—Ebury-st., i.g. rents 36*l.*, u.t. 18 yrs., g.r. 2*l.* 330

By JONES, LANG, & Co.

Hillingdon, Middx.—High-rd., "Wilton Lodge" and 3¼ acres, f.p. 2,200

High-road.—An enclosure of freehold land, 1 a. 3 r. 23 p. 400

Islington.—69, Upper-st., f., y.r. 135*l.* 2,750

Knightsbridge.—9, Montpelier-sq., f., p. 1,800

By MAPLE & Co.

Worthing, Sussex.—Farncombe-rd., "Grayingham" and 1½ acres, f., y.r. 120*l.* £2,200

By T. D. PEACEY.

St. John's Wood.—46, Abbey-rd., u.t. 32 yrs., g.r. 14*l.* 14s., y.r. 85*l.* 700

Brixton.—66, Effra-parade, f., w.r. 32*l.* 10s... 365

72 and 74, Effra-parade, u.t. 58 yrs., g.r. 7*l.*, w.r. 65*l.* 460

Camden Town.—18, Priory-st., u.t. 19½ yrs., g.r. 5*l.*, q.r. 35*l.* 200

By REYNOLDS & EASON.

Piccadilly.—B3, "The Albany" (chambers), f., e.r. 100*l.* 600

West Ham.—287 and 289, Romford-rd., f., y.r. 78*l.* 1,240

Bow.—131 to 137 (odd), Malmesbury-rd., u.t. 41¾ yrs., g.r. 16*l.*, y.r. 112*l.* 1,020

Forest Gate.—38, Dunbar-rd., u.t. 82 yrs., g.r. 4*l.* 10s. y.r. 33*l.* 18s. 250

Stoke Newington.—28, Wolsey-rd., and 2A, Queen Margaret's-gr., u.t. 44 yrs., g.r. 11*l.* 6s., y.r. 70*l.* 800

Lee.—35, Effingham-rd., u.t. 68 yrs., g.r. 6*l.* 6s., y.r. 35*l.* 325

38 to 44 (even), 43 to 45, 51 and 53, Effingham-rd., u.t. 72 yrs., g.r. 44*l.*, y.r. 184*l.* 1,900

Dalston.—Norfolk-rd., i.g. rents 37*l.* 16s., u.t. 56 yrs., g.r. 6d. 740

Tottenham.—Brampton-rd., f.g. rents 15*l.*, reversion in 93 yrs. 365

Hornsey.—St. Mary's-rd., f.g.r. 10*l.*, reversion in 74 yrs. 270

By TYSER, GREENWOOD, & CRIER.

Hoxton.—30, Hemsworth-st., u.t. 25½ yrs., g.r. 4*l.* 4s., y.r. 36*l.* 225

Contractions used in these lists.—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; p. for possession; e.r. for estimated rental; w.r. for weekly rental; q.r. for quarterly rental; y.r. for yearly rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; la. for lane; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; av. for avenue; gdns. for gardens; yd. for yard; gr. for grove; b.h. for beerhouse; p.h. for public-house; o. for offices; s. for shops; ct. for court.

PUBLISHER'S NOTICES.

Nat. Tel., 6112, Gerrard. Telegrams, "The Builder, London."

THE INDEX (with TITLE-PAGE) for VOLUME LXXXVII. (July to December, 1904) was given as a supplement with the issue for January 14 last.

CLOTH CASES for Binding the Numbers are now ready, price 2s. 6d. each; also

READING CASES (Cloth), with Strings, price 9d. each.

THE EIGHTY-SEVENTH VOLUME of "The Builder" (bound), price Twelve Shillings and Sixpence.

SUBSCRIBERS' VOLUMES, on being sent to the Office, will be bound at a cost of 3s. 6d. each.

CHARGES FOR ADVERTISEMENTS.

COMPETITIONS, CONTRACTS, ALL NOTICES ISSUED BY CORPORATE BODIES, COUNTY AND OTHER COUNCILS, PROSPECTUSES OF PUBLIC COMPANIES, SALES BY TENDER, LEGAL ANNOUNCEMENTS, etc., etc.

Six lines or under ..... 0s. 0d.
Each additional line ..... 1s. 0d.

SITUATIONS VACANT, PARTNERSHIPS, APPRENTICESHIPS, TRADE AND GENERAL ADVERTISEMENTS.

Six lines (about fifty words) or under ..... 4s. 6d.
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Terms for series of Trade advertisements, and for front page, and other special positions, on application to the Publisher.

SITUATIONS WANTED (Single-handed—Labour only).

Four lines (about thirty words) or under ..... 2s. 6d.
Each additional line (about ten words) ..... 0s. 6d.

PREPAYMENT IS ABSOLUTELY NECESSARY.

*** Stamps *must not* be sent, but all sums should be remitted by Postal Orders, payable to J. MORGAN, and addressed to the Publisher of "THE BUILDER," Catherine Street, W.C.

Advertisements for the current week's issue are received up to THREE o'clock p.m. on THURSDAY, but "Classification" is impossible in the case of any which may reach the Office after HALF-PAST ONE p.m. on that day. Those intended for the Outside Wrapper should be in by TWELVE NOON on WEDNESDAY.

ALTERATIONS IN STANDING ADVERTISEMENTS or ORDERS TO DISCONTINUE same must reach the Office before TEN o'clock on WEDNESDAY MORNING.

The Publisher cannot be responsible for DRAWINGS, TESTIMONIALS, etc., left at the Office in reply to advertisements, and strongly recommends that of the latter COPIES ONLY should be sent.

PERSONS advertising in "THE BUILDER" may have *Replies addressed to the Office*, Catherine Street, Covent Garden, W.C., *free of charge*. Letters will be forwarded if addressed envelopes are sent, together with sufficient stamps to cover the postage. Unused stamps are returned to advertisers the week after publication.

AN EDITION Printed on THIN PAPER, for FOREIGN and COLONIAL CIRCULATION, is issued every week.

READING CASES { NINEPENCE EACH. By post (carefully packed) 1s.

MEETINGS.

SATURDAY, MAY 20.

Edinburgh Architectural Association.—Visit to Dundee under the auspices of the Dundee Institute of Architecture.

MONDAY, MAY 22.

Society of Arts (*Cantor Lectures*). — Mr. H. W. Ravenshaw on "The Uses of Electricity in Mines." II. 8 p.m.

TUESDAY, MAY 23.

Royal Institution.—The Rev. H. G. Woods, D.D., on "Velazquez." I. 5 p.m.

Society of Arts (*Colonial Section*).—Sir Charles H. T. Metcalfe, Bart., M.Inst.C.E., on "The Cape to Cairo Railway." 4.30 p.m.

WEDNESDAY, MAY 24.

Society of Arts.—Twenty-Second Ordinary Meeting. Mr. Killingworth Hedges, M.Inst.C.E., on "Modern Lightning Conductors." 8 p.m.

THURSDAY, MAY 25.

Society of Antiquaries.—8.30 p.m.

Royal Institution.—Professor J. A. Fleming, M.A., on "Electromagnetic Waves." I. 5 p.m.

FRIDAY, MAY 26.

Royal Institution.—Professor Julius W. Brühl on "The Development of Spectro-Chemistry." 9 p.m.

PRICES CURRENT OF MATERIALS.

*** Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

BRICKS, &c.

	£ s. d.	
Hard Stocks	1 10 0	per 1000 alongside, in river.
Rough Stocks and Grizzles	1 6 6	" " "
Facing Stocks	2 2 0	" " "
Shippers	2 2 0	" " "
Flettons	1 7 0	" at railway depôt.
Red Wire Cuts	1 14 0	" " "
Best Fareham Red	3 12 0	" " "
Best Red Pressed Ruabon Facing	5 0 0	" " "
Best Blue Pressed Staffordshire	4 2 6	" " "
Do. Bullnose	4 7 6	" " "
Best Stourbridge Fire Bricks	4 0 0	" " "
GLAZED BRICKS.		
Best White and Ivory Glazed Stretchers	12 0 0	" " "
Headers	11 0 0	" " "
Quoins, Bullnose, and Flats	16 0 0	" " "
Double Stretchers	19 0 0	" " "
Double Headers	16 0 0	" " "
One Side and two Ends	19 0 0	" " "
Two Sides and one End	20 0 0	" " "
Splays, Chamferred, Squints	20 0 0	" " "
Best Dipped Salt Glazed Stretchers, and Header	12 0 0	" " "
Quoins, Bullnose, and Flats	14 0 0	" " "
Double Stretchers	15 0 0	" " "
Double Headers	14 0 0	" " "
One Side and two Ends	15 0 0	" " "
Two Sides and one End	15 0 0	" " "
Splays, Chamferred, Squints	14 0 0	" " "
Second Quality White and Dipped Salt Glazed	2 0 0	" less than best.

	s. d.	
Thames and Pit Sand	7 0	per yard, delivered.
Thames Ballast	5 9	" "
Best Portland Cement	27 0	per ton, "
Best Ground Blue Lias Lime	20 0	" "

NOTE.—The cement or lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime.....12s. 0d. per yard, delivered.
Stourbridge Fireclay in sacks 27s. 0d. per ton at rly. dpt.

STONE.

	s. d.	
BATH STONE—delivered on road waggons, Paddington Depôt	1 6½	per ft. cube.
Do. do. delivered on road waggons, Nine Elms Depôt	1 8½	" "
PORTLAND STONE (20 ft. average)— Brown Whitbed, delivered on road waggons, Paddington depôt, Nine Elms depôt, or Pimlico Wharf	2 1	" "
White Basebed, delivered on road waggons, Paddington depôt, Nine Elms depôt, or Pimlico Wharf	2 2½	" "

	s. d.	
Ancaster in blocks	1 11	per ft. cube, deld. rly. depôt.
Beer "	1 6	" "
Greenshill "	1 10	" "
Darley Dale in blocks	2 4	" "
Red Corsehill "	2 5	" "
Closeburn Red Freestone	2 0	" "
Red Mansfield "	2 4	" "
YORK STONE—*Robin Hood Quality.*		
Scappled random blocks	2 10	" "
6 in. sawn two sides landings to sizes (under 40 ft. super.)	2 3	per ft. super. "
6 in. rubbed two sides ditto, ditto	2 6	" "
3 in. sawn two sides slabs (random sizes)	0 11½	" "
2 in. to 2½ in. sawn one side slabs (random sizes)	0 7½	" "
1½ in. to 2 in. ditto, ditto	0 6	" "
HARD YORK—		
Scappled random blocks	3 0	per ft. cube,
6 in. sawn two sides, landings to sizes (under 40 ft. super.)	2 8	per ft. super. "
6 in. rubbed two sides ditto	3 0	" "
3 in. sawn two sides (slabs random sizes)	1 2	" "
2 in. self-faced random flags	0 5	" "

	s. d.	
Hopton Wood (Hard Red) in blocks	2 0	per ft. cube. deld. rly. depôt.
" " " 6 in. sawn both sides landings	2 7	per ft. super. deld. rly. depôt.
" " " 3 in. sawn both sides random slabs	1 0	" "
" " " 2 in. do.	0 8½	" "

SLATES.

in. in.	£ s. d.	
20 × 10 best blue Bangor	13 2 6	per 1000 of 1200 at r. d.
20 × 12 " "	13 17 6	" "
20 × 10 first quality "	13 0 0	" "
20 × 12 " " "	13 15 0	" "
16 × 8 " " "	7 5 0	" "
20 × 10 best blue Portmadoc	12 12 6	" "
16 × 8 " "	6 12 6	" "
20 × 10 best Eureka unfading green	15 17 6	" "
20 × 12 " "	18 7 6	" "
18 × 10 " "	13 5 0	" "
16 × 8 " "	10 5 0	" "
20 × 10 permanent green	11 12 6	" "
18 × 10 " "	9 12 6	" "
16 × 8 " "	6 12 6	" "

TILES.

	s. d.	
Best plain red roofing tiles	42 0	per 1000 at rly. depôt.
Hip and Valley tiles	3 7	per doz. " "
Best Broseley tiles	50 0	per 1000 " "
Do. Ornamental tiles	52 6	" " "
Hip and Valley tiles	4 0	per doz. " "
Best Ruabon red, brown, or brindled do. (Edwards)	57 6	per 1000 " "
Do. Ornamental do	60 0	" " "
Hip tiles	4 0	per doz. " "
Valley tiles	3 0	" " "
Best Red or Mottled Staffordshire do. (Peakes)	51 9	per 1000 " "
Do. Ornamental do	54 6	" " "
Hip tiles	4 1	per doz. " "
Valley tiles	3 8	" " "
Best "Rosemary" brand plain tiles	48 0	per 1000 " "
Best Ornamental tiles	50 0	" " "
Hip tiles	4 0	per doz. " "
Valley tiles	3 8	" " "
Best "Hartshill" brand plain tiles, sand faced	50 0	per 1000 " "
Do. pressed	47 6	" " "
Do. Ornamental do	50 0	" " "
Hip tiles	4 0	per doz. " "
Valley tiles	3 6	" " "

WOOD.

BUILDING WOOD.	At per standard. £ s. d.	£ s. d.
Deals: best 3 in. by 11 in. and 4 in. by 9 in. and 11 in	13 10 0	15 0 0
Deals: best 3 by 9	13 0 0	14 0 0
Battens: best 2½ in. by 7 in. and 8 in., and 3 in. by 7 in. and 8 in.	11 0 0	12 0 0
Battens: best 2½ by 6 and 3 by 6	0 10 0	less than 7 in. and 8 in.
Deals: seconds	1 0 0	less than best.
Battens: seconds	0 10 0	" " "
2 in. by 4 in. and 2 in. by 6 in.	9 0 0	10 0 0
2 in. by 4½ in. and 2 in. by 5 in.	8 10 0	9 10 0
Foreign Sawn Boards— 1 in. and 1¼ in. by 7 in.	0 10 0	more than battens.
¾ in.	1 0 0	"

	At per load of 50 ft.	
Fir timber: best middling Danzig or Memel (average specification)	4 10 0	0 0
Seconds	4 0 0	10 0
Small timber (8 in. to 10 in.)	3 12 6	3 15 0
Small timber (6 in. to 8 in.)	3 0 0	3 10 0
Swedish balks	2 10 0	3 0 0
Pitch-pine timber (30 ft. average)	3 5 0	3 15 0

JOINERS' WOOD.	At per standard.	
White Sea: first yellow deals, 3 in. by 11 in	24 0 0	25 0 0
3 in. by 9 in.	22 0 0	23 0 0
Battens, 2½ in. and 3 in. by 7 in.	16 10 0	18 0 0
Second yellow deals, 3 in by 11 in.	18 10 0	20 0 0
" " 3 in. by 9 in.	17 10 0	19 0 0
Battens, 2½ in. and 3 in. by 7 in.	13 10 0	14 10 0
Third yellow deals, 3 in. by 11 in. and 9 in.	13 10 0	15 0 0
Battens, 2½ in. and 3 in. by 7 in.	11 0 0	12 0 0
Petersburg: first yellow deals, 3 in. by 11 in.	21 0 0	22 10 0
Do. 3 in. by 9 in.	18 0 0	19 10 0
Battens	13 10 0	15 0 0
Second yellow deals, 3 in. by 11 in.	16 0 0	17 0 0
Do. 3 in. by 9 in.	14 10 0	16 0 0
Battens	11 0 0	12 10 0
Third yellow deals, 3 in. by 11 in.	13 0 0	14 0 0
Do. 3 in. by 9 in.	12 10 0	14 0 0
Battens	10 0 0	11 0 0
White Sea and Petersburg :— First white deals, 3 in. by 11 in.	14 10 0	15 10 0
" " 3 in. by 9 in.	13 10 0	14 10 0
Battens	11 0 0	12 0 0
Second white deals, 3 in. by 11 in.	13 10 0	14 10 0
" " 3 in. by 9 in.	12 10 0	13 10 0
" " battens	10 0 0	11 0 0
Pitch-pine: deals	16 10 0	20 0 0
Under 2 in. thick extra	0 10 0	1 0 0
Yellow Pine—First, regular sizes	44 0 0	upwards.
Oddments	32 0 0	"
Seconds, regular sizes	33 0 0	"
Yellow Pine oddments	28 0 0	"
Kauri Pine—Planks, per ft. cube	0 3 6	0 5 0
Danzig and Stettin Oak Logs— Large, per ft. cube	0 3 0	0 3 6
Small " "	0 2 6	0 2 9
Wainscot Oak Logs, per ft. cube	0 5 0	0 5 6
Dry Wainscot Oak, per ft. sup. as inch	0 0 8	0 0 9
¾ in. do. do.	0 0 7	—
Dry Mahogany—Honduras, Tabasco, per ft. super. as inch	0 0 9	0 1 0
Selected, Figury, per ft. sup. as inch	0 1 6	0 2 6
Dry Walnut, American, per ft. sup. as inch	0 0 10	0 1 0
Teak, per load	17 0 0	22 0 0
American Whitewood Planks, per ft. cube	0 4 0	0 5 0

Prepared Flooring, etc.—	Per square.	
1 in. by 7 in. yellow, planed and shot	0 13 6	0 17 6
1 in. by 7 in. yellow, planed and matched	0 14 0	0 18 0

WOOD (*continued*).

Prepared Flooring, etc. (*continued*)—	Per square. £ s. d.	£ s. d.
1¼ in. by 7 in. yellow, planed and matched	0 16 0	1 0 0
1 in. by 7 in. white, planed and shot	0 12 0	0 14 6
1 in. by 7 in. white, planed and matched	0 12 6	0 15 0
1¼ in. by 7 in. white, planed and matched	0 15 0	0 16 6
¾ in. by 7 in. yellow, matched and beaded or V-jointed brds.	0 11 0	0 13 6
1 in. by 7 in. do. do.	0 14 0	0 18 0
¾ in. by 7 in. white do. do.	0 10 0	0 11 6
1 in. by 7 in. do. do. do.	0 12 9	0 15 0

6 in. at 6d. to 9d. per square less than 7 in.

JOISTS, GIRDERS, &c.

	In London, or delivered Railway Vans, per ton. £ s. d.	£ s. d.
Rolled Steel Joists, ordinary sections	6 0 0 ...	6 15 0
Compound Girders, ordinary sections	7 10 0 ...	8 10 0
Steel Compound Stancheons	9 2 6 ...	10 12 6
Angles, Tees and Channels, ordinary sections	7 10 0 ...	8 10 0
Flitch Plates	7 15 0 ...	8 5 0
Cast Iron Columns and Stanchions including ordinary patterns	6 12 6 ...	7 15 0

METALS.

	Per ton, in London. £ s. d.	£ s. d.
IRON— Common Bars	7 0 0 ...	7 10 0
Staffordshire Crown Bars, good merchant quality	7 10 0 ...	8 0 0
Staffordshire "Marked Bars"	9 10 0 ...	—
Mild Steel Bars	8 5 0 ...	8 15 0
Hoop Iron, basis price	8 15 0 ...	9 0 0
" " Galvanized	16 10 0 ...	—
(*And upwards, according to size and gauge.)		
Sheet Iron, Black— Ordinary sizes to 20 g.	9 0 0 ...	—
" " 24 g.	10 0 0 ...	—
" " 26 g.	11 15 0 ...	—
Sheet Iron, Galvanised, flat, ordinary quality— Ordinary sizes—6 ft. by 2 ft. to 3 ft. to 20 g.	12 10 0 ...	—
Ordinary sizes to 22 g. and 24 g.	13 0 0 ...	—
Sheet " " 26 g.	14 0 0 ...	—
Sheet Iron, Galvanised, flat, best quality— Ordinary sizes to 20 g.	15 10 0 ...	—
" " 22 g. and 24 g.	16 0 0 ...	—
" " 26 g.	17 10 0 ...	—
Galvanised Corrugated Sheets— Ordinary sizes 6 ft. to 8 ft. 20 g.	12 10 0 ...	—
" " 22 g. and 24 g.	13 0 0 ...	—
" " 26 g.	13 15 0 ...	—
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. by 20 g. and thicker	11 0 0 ...	—
Best Soft Steel Sheets, 22 g. & 24 g.	12 0 0 ...	—
" " 26 g.	13 10 0 ...	—
Cut nails, 3 in. to 6 in.	9 0 0 ...	9 10 0

(Under 3 in., usual trade extras.)

LEAD, &c.

	Per ton, in London. £ s. d.	£ s. d.
LEAD—Sheet, English, 3 lb. and up	15 7 6 ...	—
Pipe in coils	15 17 6 ...	—
Soil pipe	18 7 6 ...	—
Compo pipe	18 7 6 ...	—
ZINC—Sheet— Vieille Montagne ton	30 15 0 ...	—
Silesian	30 10 0 ...	—
COPPER— Strong Sheet per lb.	0 0 10 ...	—
Thin " "	0 0 11 ...	—
Copper nails "	0 0 10 ...	—
BRASS— Strong Sheet "	0 0 9½ ...	—
Thin " "	0 0 10 ...	—
TIN—English Ingots "	0 1 4½ ...	—
SOLDER—Plumbers' "	0 0 6½ ...	—
Tinmen's "	0 0 8 ...	—
Blowpipe "	0 0 9 ...	—

ENGLISH SHEET GLASS IN CRATES.

15 oz. thirds	2¾d. per ft. delivered.
" fourths	2d. " "
21 oz. thirds	3¾d. " "
" fourths	3d. " "
26 oz. thirds	4¾d. " "
" fourths	3¾d. " "
32 oz. thirds	5¾d. " "
" fourths	5d. " "
Fluted Sheet, 15 oz.	3¼d. " "
" 21 oz.	4¼d. " "
⅛ Hartley's Rolled Plate	2d. " "
3/16 " " "	2¼d. " "
¼ " " "	2½d. " "

OILS, &c.

		£ s. d.
Raw Linseed Oil in pipes	per gallon	0 1 8
" " in barrels	"	0 1 9
" " in drums	"	0 1 11
Boiled " in pipes	"	0 1 10
" " in barrels	"	0 1 11
" " in drums	"	0 2 1
Turpentine, in barrels	"	0 3 9
" in drums	"	0 3 11
Genuine Ground English White Lead	per ton	19 15 0
Red Lead, Dry	"	19 5 0
Best Linseed Oil Putty	per cwt.	0 6 6
Stockholm Tar	per barrel	1 12 0

VARNISHES, &c.

	Per gallon. £ s. d.
Fine Pale Oak Varnish	0 8 0
Pale Copal Oak	0 10 6
Superfine Pale Elastic Oak	0 12 6
Fine Extra Hard Church Oak	0 10 0
Superfine Hard-drying Oak, for seats of Churches	0 14 0
Fine Elastic Carriage	0 12 6
Superfine Pale Elastic Carriage	0 16 0
Fine Pale Maple	0 16 0
Finest Pale Durable Copal	0 18 0
Extra Pale French Oil	1 1 0
Eggshell Flatting Varnish	0 18 0

VARNISHES, &c.—(*continued*).	Per Gallon. £ s. d.
White Copal Enamel	1 4 0
Extra Pale Paper	0 12 0
Best Japan Gold Size	0 10 6
Best Black Japan	0 16 0
Oak and Mahogany Stain	0 9 0
Brunswick Black	0 8 6
Berlin Black	0 16 0
Knotting	0 10 0
French and Brush Polish	0 10 0

TERMS OF SUBSCRIPTION.

"THE BUILDER" (Published Weekly) is supplied DIRECT from the Office to residents in any part of the United Kingdom at the rate of 19s. per annum (52 numbers) PREPAID. To all parts of Europe, America, Australia, New Zealand, India, China, Ceylon, etc., 20s. per annum. Remittances (payable to J MORGAN) should be addressed to the Publisher of "THE BUILDER," Catherine-street, W.C.

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TENDERS.

Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 *a.m. on Thursdays*. [N.B.—We cannot publish Tenders unless authenticated either by the architect or the building-owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is stated, nor any list in which the lowest Tender is under 100*l.*, unless in some exceptional cases and for special reasons.]

* Denotes *accepted*. † Denotes *provisionally accepted*.

AMMANFORD.—For carrying out a scheme of water supply for the parish of Llandebie and the town of Ammanford, for the Llandilo-fawr Rural District Council and the Ammanford Urban District Council. Mr. H. Herbert, engineer, Brynmarlais, Ammanford. Quantities by engineer:—

Callender & Co., Ltd.	£22,017 14 5	T. Arnold ..	£16,325 0 0
Davies & Griffiths..	20,546 0 0	Jenkins & Maddocks	16,118 0 0
J. H. Macdonald ..	18,352 0 0	Meredith Bros.	15,964 1 7
R.C. Brebner & Co.....	17,040 0 0	E. Powell, Pendennis, Whitchurch, nr. Cardiff*	15,770 14 0
G. Mercer ..	16,958 0 0		
P. Davies ..	16,438 17 0	H. Roberts	15,297 0 0

[Engineer's estimate, £16,226.]

BARROW-IN-FURNESS. — For extension of electricity works, Buccleuch-street, for the Corporation. Mr. J. Walker Smith, Borough Engineer and Surveyor. Quantities by Engineer:—

W. Gradwell & Co., Ltd., Hindpool-road, Barrow-in-Furness* £4,271 8

BEDFORD.—For sewering and road-making on the St. Cuthbert's Glebe Building Estate, for Messrs. Hobson & Martin. Mr. R. Lund, architect and surveyor, 8, St. Paul's-square, Bedford:—

Ginn & Brace	£1,092 9 2	G. Harrison..	£922 7 6
W. G. Willmott.....	1,082 13 9	F. Ray, Bedford*.....	798 11 8
J. Jackson ..	1,038 9 0		

BEXLEY.—For the erection of villa for men, Bexley Asylum, for the Asylums Committee of the London County Council:—

C. Wall, Ltd.	£14,226 0 0
Patman & Fotheringham, Ltd.	13,533 0 0
Foster & Dicksee	13,467 16 11
F. & F. H. Higgs	13,000 0 0
H. L. Holloway	12,982 0 0
Holloway Bros., Ltd.	12,857 0 0
H. Lovatt, Ltd.	12,845 19 8
Leslie & Co., Ltd.	12,795 0 0
Holliday & Greenwood, Ltd.	12,589 0 0
E. Lawrance & Sons	12,338 0 0
J. Greenwood, Ltd.*	12,142 0 0

BOOTLE.—For the construction of a brick sewer, 465 yds. in length, for the Corporation. Mr. B. J. Wolfenden, Borough Engineer, Town Hall, Bootle:—

B. Hopkinson, Seaforth* £1,333 18 6

BRIDGWATER.—For erecting new central buildings, for the Co-operative Society, Ltd. Mr. J. W. Hill, architect and surveyor, King-street-chambers, Bridgwater. Quantities by architect:—

Walters & Son	£2,467 0 0	F. Scott	£1,720 0 0
Colborne	2,278 5 0	J. E Tursland	1,700 0 0
T. Stockham	2,199 0 0	A. Green	1,698 0 0
Gleed Bros...	1,989 18 4	C. Bryer, jun., Bridgwater*	1,600 0 0
Westbury & Jarman....	1,849 0 0		

CARDIFF.—For panelling and seating the council chamber of the new Town Hall:—

Smer & Cobay, Ltd.	£5,523 0 0
W. H. Lascelles & Co.	4,850 0 0
C. Sims & Co.	4,500 0 0
Inglesant & Sons, Ltd.	4,365 0 0
Elliott's Moulding and Joinery Co. ..	4,229 0 0
J. Garvey & Sons	3,986 0 0
Scott Bros.	3,972 0 0
P. E. Gane	3,728 0 0
Stephens, Bastow, & Co.	3,697 0 0
S. J. Waring & Sons	3,623 0 0
J. Patch & Sons	3,595 0 0
Gillow & Co.	3,562 0 0
Morton & Son, Ltd.	3,533 0 0
Goodall, Lamb, & Highway, Ltd.	3,499 0 0
Shapland & Petter	3,485 0 0
W. I. Vaughan	3,384 4 9
E. Turner & Sons	3,358 0 0
Alden Bros. & Davies	3,231 0 0
J. P. White	3,087 0 0
Hayward & Wooster	2,969 0 0
North of England School Furnishing Co., Ltd.	2,930 15 6
J. Plucknett & Co.	2,660 0 0
Dart & Francis	2,597 0 0
R. H. Martyns & Co., Cheltenham* ..	2,195 0 0

BRIDLINGTON.—For erecting two houses and premises, for Mr. T. Grimshaw. Mr. J. Earnshaw, architect, Bridlington:—

S. Gray, Bridlington* £594

CLEETHORPES.—For 7,308 and 11,014 sq. yds. of tar macadam, for the Cleethorpes-with-Thrunscoe Urban District Council. Mr. E. Rushton, Engineer and Surveyor, Council House, Cleethorpes:—

Ames, Crosta, & Co.	£3,939 15 0	H. Ashley ..	£2,748 6 0
Asphaltic Limestone Concrete Co.	3,849 5 4	J. Brunton..	2,703 5 6
J. & M. Patrick	3,528 0 0	Pearson & Turner ..	2,687 16 8
H. H. Barry	3,299 0 0	Hadfield & Son	2,428 7 2
Northern Quarry Co., Ltd.	3,237 13 4	H. Mason ..	2,411 19 8
J. H. Vickers	3,130 8 6	J. J. Ingham	2,352 0 4
T. C. Starkey	3,069 10 10	E. R. White	2,336 11 6
Parker & Sharpe ..	3,054 10 8	North of England Asphalte Co.	2,321 11 4
G. Watson, Ltd.	2,947 6 2	Constable, Hart, & Co.	2,276 2 2
Smart & Son	2,933 3 4	Parry & Son, Ltd., Kirton, Lindsey*	2,260 4 8
G. Reed & Son.....	2,932 6 0	J. Brooke ..	2,107 11 0
Deeley & Co.	2,932 6 0	Haigh & Co.	2,061 17 6
G. Bell	2,932 6 0	Hardy & Atkinson .	1,969 17 6
H. Ellison..	2,810 1 4	A. Brunton .	1,954 17 4
Stansbery ..	2,794 12 6	J. Moran ..	1,832 12 8
Chittenden & Simmons..	2,772 2 3	J. Pickshall & Son....	1,744 10 0

Surveyor's estimate, £2,748 10.

CLEETHORPES.—For an 18-in. sewer, sewer diversion and storm-water overflow, foundations for new road and promenade, dwarf wall, pillar, steps, etc., for the Cleethorpes-with-Thrunscoe Urban District Council. Mr. E. Rushton, C.E., Engineer and Surveyor, Council House, Cleethorpes:—

H. H. Barry	£6,206 13 1	J. Brunton .	£4,892 14 9
Read & Son	5,828 15 8	A. Brunton .	4,865 7 3
C. Starkey .	5,536 6 2	Hardy & Atkinson ..	4,778 1 3
G. Bell	5,385 8 10	H. Mason ..	4,753 17 11
J. & M. Patrick	5,210 0 0	G. W. Brown	4,581 0 4
H.H. Vickers	5,067 0 0	Hewins & Goodhand, Grimsby* .	4,569 7 9
Parker & Sharpe ..	5,064 13 0	Watson & Co.	4,486 8 2
H. Ashley ..	5,028 19 0	J. Moran ..	3,917 8 5
Pearson & Turner ..	4,997 10 0	J. Pickthall .	3,737 0 0

[Surveyor's estimate, £4,481 5 11.]

CONGRESBURY (Somerset).—For works of repair at church. Messrs. H. Price and W. Jane, architects, Weston-super-Mare:—

The Universal Engineering Co.	£399 10 0	W. Hogg & Son	£256 12 6
Blackburn, Starling, & Co., Ltd. ..	362 17 0	H. Dyer.....	235 0 0
J. W. Pitts ..	325 0 10	F. A. R. Woodward	204 5 0
R. B. Helton & Sons	317 10 0	G. Lucas	177 5 9
G. Swinnerton & Son..	273 0 0	J. Ward & Sons, Weston-super-Mare*	125 0 0
		F. Corner	80 19 9

CORKY (Northants).—For a pair of residences, for the Kettering Industrial Co-operative Society, Ltd. Messrs. Bird & Batley, architects, Gold-street-chambers, Kettering:—

R. R. Colyer	£697 3	Kettering Co-operative Builders, Ltd...	£598 10
J. Streather & Son	630 0	O. P. Dreser	574 0
C. & F. Henson..	616 0	C. Andrew	568 0
Smith & Edmunds	608 0	H. Judkins*	566 0

COWPEN.—For making-up Back Claremont-terrace, Waterloo, for the Urban District Council. Mr. R. Grieves, Surveyor to Council:—

J. Robson, Newcastle-on-Tyne* .. £345 5 6

ELLINGHAM.—For constructing a reservoir to hold 30,000 gallons, near Brockdam Moor (North Sunderland water supply), for the Trustees of Lord Crewe's Charity. Messrs. Anson & Shenton, engineers, 28, Victoria-street, Westminster, S.W.:—

W. Lant	£464 3 0	Elliott Bros., Preston, Chathill* ..	£235 0 0
J. Davidson..	390 0 0	E. & A. Storey	232 15 7
McLaren & Co.	325 0 0	E. Mackay & Son	219 0 0
W. Foster....	322 6 5	W. Carr	213 1 6
J. Carrick....	321 0 0	Hardy & Atkinson	198 0 0
Henderson & Armstrong .	310 0 0	R. Hudson & Sons	197 0 0
Brebner & Co.	290 0 0	J. & G. Green	195 0 0
Braithwaite & Co.....	285 0 0		
R. Carse & Son	271 0 0		
J. T. Short ..	237 17 11		

EPSOM.—For heating and ventilation of Long Grove Asylum, for the London County Council:—

Newton Chambers & Co., Ltd.....	£27,034	R. Dawson & Co.	£21,382
J. Howorth & Co.	25,792	Ashwell & Nesbit	21,312
Wenham & Waters	25,191	Dargue, Griffiths, & Co.	20,057
Körting Bros.....	24,394	Z. D. Berry & Sons	19,300
G. N. Haden & Sons.....	23,985	Lancashire Heating Co.....	18,600
Sutcliffe Ventilating Co.....	23,515	Lea & Warren ..	18,575
J. Keith & Blackman, Ltd.....	23,017	T. Potter & Sons.	17,279
Moorwood & Sons	22,119	Brightside Foundry Co.....	16,891
		Strode & Co.	16,483
Alternative Schemes.			
Körting Bros.‡ ..	£24,985	Ashwell & Nesbit¶	£21,023
Dargue, Griffiths, & Co.§	20,057	Strode & Co.* ‖ ..	19,536
Moorwood & Sons‖	22,119	Lea & Warren‖ ..	18,895

‡ Patent low-pressure system. § Hot-water system. ‖ Atmospheric principle. ¶ Vacuum principle.

FOCHRIW. — For alterations at the Penybank Isolation Hospital, for the Gelligaer and Rhigos Rural District Council. Mr. P. V. Jones, architect, Hengoed:—

Vodden & Lee, Gilfach, Pengam, Cardiff.. £168 10

GLYN-NEATH.—For erecting a new chapel at Cwmgwrach, for the Welsh Baptists. Mr. J. Cook Rees, architect, Neath:—

Walters & John	£1,060 0 0	W. Harrett & Sons, Glyn-Neath* ..	£890 0
D. Herbert ..	1,010 0 0	D. Edwards..	743 12 ?
J. D. Wilkins	996 2 9		

GREENOCK.—For erecting a new hospital at Gateside, near Greenock, for the Greenock and District Combination Hospital Board. Mr. Alex. Cullen, architect, Hamilton. Quantities by Messrs. Charles Marshal & Son, 68, Bath-street, Glasgow:—

Builders: London & Inglis, Coatbridge.
Joiners: A. Niven & Sons, Glasgow.
Plumber: J. Crawford, Greenock.
Plasterer: J. McKenzie, Glasgow.
Slaters: C. Robertson & Son, Greenock.
Painter: P. McKerracher, Glasgow.
Concrete Workers: D. & J. McKenzie, Glasgow.
Steel Workers: P. & W. McLellan, Glasgow.
Tile Workers: Cherry & Co., Glasgow.
Fireproof Floors: Ferguson & Co., Glasgow.
Boilers: J. Marshall, Motherwell.

[The amounts of the various tenders cannot be stated as the whole scheme is not to be proceeded with at present, and the final amount is decided by measurement on the completion of the contracts.]

HASLEMERE.—For internal finishings to two houses, Marley-lane, Haslemere, Surrey. Mr. C. L. Morgan, architect, 2, Station-chambers, Haslemere, and 43, Cannon-street, London, E.C.:—

T. Luff ..... £289 | W. T. Harding* £285

HEATH TOWN.—For paving, kerbing, channeling, etc., Nine Elms-lane, Heath Town, near Wolverhampton, for the Urban District Council. Messrs. R. E. W. Berrington & Son, engineers, Wolverhampton:—

J. Owens, St. Mark's-road, Wolverhampton* £429 19

HERNE BAY.—For repairs and external painting to St. Anne's House, Herne Bay, for the Metropolitan Asylums Board. Mr. W. T. Hatch, Engineer-in-Chief:—

C. Cotching ..	£263 10 9	E. Proctor & Son, 326, High-street, Plumstead* .	£164 0 0
G. Browning ..	237 0 0		

ISHAM (Northants).—For proposed residence and fencing to grounds thereof. Messrs. Bird & Batley, architects, Gold-street-chambers, Kettering:—

E. Brown & Son..	£797 10	C. & F. Henson..	£756 0
Berrill & Green ..	789 0	A. J. Ball	754 0
Capps, Rowley, & Keach	768 0	C. Lewis	750 0
A. Lewis.....	765 0	Kettering Co-operative Builders, Ltd...	744 0
A. Lewin & Son..	763 0		
Smith, Edmunds, & Co.	762 0		

JARROW.—For laying cement footpaths and channels, for the Urban Sanitary Authority. Mr. J. Petrie, Borough Surveyor, Grange-road, Jarrow:—

G. Thornton	£577 14	T. Callaghan, Staple-road, Jarrow*	£490 6
W. Kennedy	544 0		

KENILWORTH.—For sewerage and sewage disposal works, for the Urban District Council. Messrs. Wilcox & Raikes, engineers, 63, Temple-row, Birmingham. Quantities by engineers:—

Wright & Co.	£10,269	Worthington	£7,119
J. Riley	9,392	Locke, Andrews, & Price	6,960
Bently & Locke ..	8,984	A. Jewell.....	6,900
W. Cunliffe.....	7,890	T. Vale & Son ..	6,899
Sutherland & Thorpe.....	7,883	A. Firth & Co. ..	6,874
Kelly & Son	7,457	Lowe & Son	6,725
Jameson & Son ..	7,400	Rowell & Son, Chipping Norton*	6,605
McCarthy & Co...	7,279		
E. Boore.....	7,218		
Currall, Lewis, & Martin	7,167		

LEEDS.—For erecting a Wesleyan school chapel at Harehills, for the Trustees of the Wesleyan Methodist Church. Mr. J. W. Thackray, architect, 4, Greek-street, Leeds:—

Brick, Stone, and Joiners: W. Airey & Son*
Slaters: Messrs. Watson & Worsnop* .... } £1,910
Plasterer: T. Moore* .....
Plumber: F. L. Armitage* .....
Painters: Jenkins, Tollerton, & Co.* ....
[All of Leeds.]

LONDON.—For enlargement and improvements, Portobello-road, Kensington, N., for the London County Council Education Department.

Boys' Department — Providing hall, 48 ft. by 30 ft. 6 in.; five classrooms, 50, 50, 48, 48, and 48; extending cloakrooms and lavatories; converting two classrooms into three rooms of 40 each; and providing additional lighting. *Girls' Department*—Adding two classrooms (at present used by boys), accommodating 60 and 50; providing partition, corridor, etc. *Generally*—Enclosing, tar-paving and draining the additional land, providing new offices and covered playground for boys; forming a new entrance through No. 108, Lancaster-road, and altering the house, retaining the upper portion for a housewifery centre. Providing a coal store. The revised accommodation, on the completion of the improvements, will be—Boys, 444; girls, 456; infants, 366; total, 1,266, being a total gain of 175 places:—

C. Wall, Ltd.	£9,110	Patman & Fotheringham, Ltd. ..	£7,781
F. T. Chinchen & Co.	9,089	J. Simpson & Son .	7,663
General Builders, Ltd.	8,896	Stimpson & Co. ..	7,590
Leslie & Co., Ltd. .	8,409	E. Triggs	7,580
C. F. Kearley	7,827	W. Johnson & Co., Ltd.	7,492
Rice & Son	7,821	J. & M. Patrick, Point Pleasant, Wandsworth* ..	7,290
Lathey Bros.	7,815		
Lawrance & Sons .	7,804		

TENDERS.—*Continued on page* 557.

CONTRACTS AND PUBLIC APPOINTMENTS.

(For some Contracts, etc., still open, but not included in this List, see previous issues.)

CONTRACTS.

Nature of Work or Materials.	By whom Advertised.	Forms of Tender, etc., supplied by	Tenders to be Delivered
Street Works (eleven contracts)	Manchester Paving, etc., Committee	Paving, etc., Dept. (Surveyor's Office), Town Hall, Manchester	May 20
Dwelling-house, Dinniehorn, N.B.	.....	Fiddoch Cottage, Arndilly, N.B.	do.
Painting, County Asylum, Prestwich	Committee of Visitors	At the Asylum	May 22
Stores	Greenock Corporation	W. Ewing, Engineer and Manager, Inchgreen Gasworks, Greenock	do.
Building an Exhauster House	Glyncorrwg U.D.C.	Council Offices, Cymmer (Mr. W. P. Jones)	do.
Purifiers, Boiler, Exhauster, and Engine and Pumps	do.	do.	do.
Resetting a Bed of Five Retorts	do.	do.	do.
Water Main Exten., Warwick Bdge. to Holme Eden	Carlisle U.D.C.	F. Barker, Waterworks Manager, 7, Victoria-place, Carlisle	do.
300 tons of Gravel	Epping U.D.C.	G. J. Creed, Clerk, Epping	do.
Infirmary Buildings, Newall, Otley	Wharfedale Guardians	W. H. H. Marten, Architect, 24, Church Bank, Bradford	do.
Electric Light Installation, Parkhead District Library	Glasgow Corporation	J. R. Rhind, 67, Hope-street, Glasgow	do.
Causewaying Glasgow-road	Perth Town Council	R. M'Killop, Burgh Surveyor, 12, Tay-street, Perth	do.
Roadmaking, Tantobie	Tantobie Co-operative Society	Architect's Dept., Co-op. Wholesale Soc., W. Blandford-st., Newc.	do.
Stables, Sick-room, etc., for Seven Horses	Bingley Industrial Co-operative, Soc.	W. Rhodes Nunn, Architect. Market-street, Bingley	do.
Centrifugal Pump at Longford Depot	Warrington Sanitary Works Com.	Manager, Longford Depot, Warrington	do.
Heating of Council (Temporary) School	Eccles Corporation	E. Parkes, Town Clerk, Eccles	do.
Stores on site of Malthouse, South Mall, Cork	Messrs. Suttons, Ltd.	S. F. Hynes, F.R.I.B.A., 21, South Mall, Cork	do.
Removal, Stone-slated Shed Roof, Mount-st., Halifax	.....	A. G. Dalzell, Architect, 15, Commercial-street, Halifax	May 23
Cover. shed wi. Iron Roof & Glazing, Mount-st., Halifax	Keynsham Guardians	do.	do.
Additions to Infirmary at Keynsham Workhouse	.....	H. M. Bennett, Arch., Liverpool-chambers, 36, Corn-street, Bristol	do.
Villa Residence, West-lane, Baildon	Salford Corporation	J. Harper Bakes, Arch., Calverley-chmbrs., Victoria-square, Leeds	do.
Sewering, Paving, etc., of Streets in Pendleton	Bombay, etc., Central India Rly. Co.	Borough Engineer's Office, Town Hall, Salford	do.
Stores	The Trustees	T. W. Wood, Gloucester House, Bishopsgate-street Without, E.C.	do.
Primitive Methodist Schoolroom, Cellarhead	Prescot Gas Co.	W. B. Marsons, Weston Coyney	do.
Gasholder Tank (85 ft. by 22 ft. 6 in. deep)	Tynemouth Corporation	J. E. Hall, Manager and Secretary	do.
Roadworks, Morpeth-terrace, etc., Percy Main	Kingstown U.D.C. (Ireland)	J. F. Smillie, Borough Surveyor, Tynemouth	do.
Painting and Colouring Interior of Library	Manchester Education Committee	The Librarian	do.
Furnhg. Residential Sch. for Crippled Chldn., Swinton	Manchester Guardians	W. H. Talbot, Town Clerk, Manchester	May 24
Small Additions to Bathroom at Swinton Schools	.....	A. J. Murgatroyd, Architect, 23, Strutt-street, Manchester	do.
Detached House, near Stump Cross, Shibden	.....	J. F. Walsh & G. Nicholas, Museum-chmbrs., Harrison rd., Halifax	do.
Boundary Walling, Railings, etc., Halifax Workhouse	.....	W. Clement Williams, Architect, 29, Southgate, Halifax	do.
School & Alters., etc., Penygarn Chapel, Pontypool	Unionist Club Co., Ltd.	W. Beddoe Rees, Architect, 3, Dumfries-place, Cardiff	do.
Unionist Club, Brampton	Wortley R.D.C.	T. Taylor Scott, Architect, 43, Lowther-street, Carlisle	do.
Caretaker's Cottage at Sewage Wks., Pilley, Tankersley	Hythe Corporation	G. E. Beaumont, Sanitary Surveyor, Grenoside, near Sheffield	do.
Sinking a 14-in. Borehole at Blue House, Saltwood	East Indian Railway Co.	C. Jones, Borough Surveyor, Bank-buildings, Hythe, Kent	do.
Metals	Winsford U.D.C.	C. W. Young, Secretary, Nicholas-lane, London, E.C.	do.
Granite, Macadam, etc.	Durham R.D.C.	J. Wilkinson, Surveyor, Winsford, Cheshire	do.
556 lineal yds. of Pipe Sewers, Coxhoe	Cardiff Corporation	G. Gregson, Surveyor, 38, Saddler-street, Durham	do.
Fifty Loads of Hardwood for Street Paving	Sheppy Gas Co.	W. Harpur, Borough Engineer, Cardiff	do.
7,000 yds. of Cast-Iron Gas-mains	Gordon-Richmond Estates	H. Barber, 2, Trinity-road, Sheerness-on-Sea	do.
Dwelling-house, Coldhome, Auchendoun	do.	Estate Office, Drumin, Glenlivet	do.
Stable and Men's Room, Corsmauld	do.	do.	do.
Stable Wing & Men's Room, Auchnarrow, Glenlivet	do.	do.	do.
Dwelling-house, Eskimerlloch	do.	do.	do.
Stable, Achdregnie	do.	do.	do.
Cattle Sheds, Blairfindy	do.	do.	do.
Byre, Lynbig	do.	do.	do.
Dwelling-house, Blairnamarrow, Strathanen	do.	do.	do.
Men's Room, etc., Haddoch, Cabrach	do.	do.	do.
Private Drainage	Birmingham Public Works Com'tee.	J. Price, City Engineer, Council House, Birmingham	do.
Road Metal	Ashford U.D.C.	W. Terrill, Surveyor, Ashford, Kent	May 25
Alterations, etc., at Wester Pittendreich Steading	.....	J. Wittet, Architect, Elgin	do.
Alterations, etc., at Wards of Alves Steading	.....	do.	do.
Shop, Caeharris, Dowlais	.....	C. M. Davies, 112, High-street, Merthyr	do.
Rebuilding Ivor Arms, Caeharris	.....	do.	do.
*New Council School, Cuxton	Kent Education Committee	G. E. Bond, Architect, 384, High-street, Rochester	do.
*Pitch Pine and Poling Boards	Lambeth Borough Council	Borough Engineer, 346, Kennington-road, S.E.	do.
Primitive Methodist Chapel and School, Masham	.....	Rev. F. Lucas, 26, College-road, Ripon	May 26
Hospital and Administration Block at Headington	R.D.C.	J. C. Coates, Surveyor, Headington	do.
Painting at Frederick-road Electricity Works, etc.	Salford Electricity Committee	Borough Electrical Engineer, Frederick-road, Pendleton	do.
House at Cragganmore Distillery, Ballindalloch	.....	C. C. Doig, Architect, Elgin	do.
Road Materials	Guildford R.D.C.	J. Anstee, Surveyor, Council Offices, Commercial-road, Guildford	do.
Alters., etc., Oddfellows' Hall, Queen's-rd., Brighton	Managing Committee	Overton & Scott, Architects, 22, Ship-street, Brighton	do.
*Cleaning and Painting Leavesden Asylum	Metropolitan Asylums Board	Office of the Board, Embankment, E.C.	do.
Findhorn and Kinloss Waterworks	Elginshire C.C.	G. Gordon & Co., Engineers, Inverness	May 27
1,600 yds. of Paving with Whinstone Setts	Anstruther Wester Town Council	J. & T. W. Currie, Architects, Elie, N.B.	do.
Embankment for Trout Loch on Finnart, Rannoch	.....	A. Gillies, Keeper, Finnart, Rannoch Station, N.B.	do.
Painting Buildings at County Asylum, Lancaster	Visiting Committee	J. T. Cheetham, Clerk and Steward	do.
Extension of Verandah, County Asylum, Lancaster	do.	do.	do.
Iron Balcony, County Asylum, Lancaster	do.	do.	do.
Columns, Girders, & C.-I. Framing for Covered Way	do.	do.	do.
Pipe Line, Section No. 2 (Masham Scheme)	Harrogate Corporation	E. W. Dixon, Engineer, 14, Albert-street, Harrogate	do.
Residence at Advie, Strathspey	.....	A. Maitland & Sons, Architects, Tain, N.B.	do.
Six Workmen's Dwellings at Aviemore Junction	Highland Railway Co.	W. Roberts, Engineer-in-Chief, Inverness	do.
Painting Outside of Workhouse at Dutton	Runcorn Guardians	G. F. Ashton, 71, High-street, Runcorn	do.
Heating Apparatus, Tonyrefail Boys' School	Glamorgan Education Committee	T. M. Franklin, Clerk, Westgate-street, Cardiff	do.
Cattle-shed, Tresawson, Merther, Cornwall	Rt. Hon. Viscount Falmouth	G. Gow, Tregothnan Office, Truro	do.
Additions to Perran House, Perranporth	.....	A. J. Cornelius, Architect, Truro	do.
110 yds. of 9-in. Stoneware Pipe Sewer, Saltwood	Elham R.D.C.	R. Lonergan, 11, Cheriton-place, Folkestone	do.
Bakery, Fochabers	.....	J. Wittet, Architect, Elgin	do.
Signal Cabin at Ferrybridge Station	N.E. & Midland Railway Co.	W. J. Cudworth, Engineer, York	May 29
Two Steel Lancashire Boilers	Bury Guardians	A. Hopkinson, Agur-street, Bury, Lancs.	do.
140 Dwelling-houses, etc., Mountain Ash	Darranlas Building Club	Morgan & Elford, Architects, 1, Jeffrey-street, Mountain Ash	do.
Granite and Granite Chippings	Rugeley U.D.C.	W. E. Rogers, Surveyor, Anson-street, Rugeley	do.
Private Street Works, Camberley	Frimley U.D.C.	T. C. Jones, Surveyor, Council Offices, High-street, Camberley	do.
Sanitary Arrangemts., etc., Undergrnd. Conveniences	Sunderland Corporation	J. W. Moncur, Borough Surveyor, Town Hall, Sunderland	do.
Five Pairs of Semi-Detached Houses, Sketty	Second Sketty Co-operative Society	C. T. Ruthen, Architect, Bank-chambers, Heathfield-st., Swansea	do.
*200 tons Pea Gravel or Granite Chippings	Hendon U.D.C.	Engineer & Surveyor to the Council, Council Offices, Hendon, N.W.	do.
*Making-up and Paving New Street	Camberwell Borough Council	Borough Engineer, Town Hall, Camberwell, S.E.	do.
Concrete Foot-paths at Parkeston	Tendring R.D.C.	J. Bell, Surveyor, Weeley, R.S.O.	May 30
Foot-paths, Mistley	do.	do.	do.
Broken Guernsey or Alderney Granite	Hadleigh U.D.C	C. J. Grimwade, Urban District Council Offices, Hadleigh, Suffolk	do.
Brick Sewer	Bootle Corporation	B. J. Wolfenden, Borough Engineer, Town Hall, Bootle	do.
General Stores	South Indian Railway Co.	H. W. Notman, 55, Gracechurch-street, London, E.C.	do.
Locomotive Stores	do.	do.	do.
65 tons of Fencing	do.	do.	do.
Machinery	Tees Conservancy Commissioners	J. H. Amos, Secretary, Middlesbrough	do.
Electric Wiring Town Hall, Markets, Baths, etc.	Bursiem Corporation	Ashton Bremner, Borough Electrical Engineer, Bursiem	do.
House Service Fuses and Meters	do.	do.	do.
Rolling for Road Repairs	Cramlington U.D.C.	W. J. Coulson, Surveyor, Cramlington	do.
Carting of Whinstone	do.	do.	do.
Supply of Whinstone and Slag	do.	do.	do.
Boundary Walls at Union Workhouse	Houghton-le-Spring Guardians	Master of the Workhouse	do.
Free School Court	Bridgend U.D.C.	M. Williams, 3, Union-street, Bridgend, Wales	do.
Street Works	West Hartlepool Corporation	N. F. Dennis, Borough Engineer, West Hartlepool	do.
Infectious Diseases Hospital for Twenty, Kensworth	Dunstable, etc., Hospital Committee	G. Simcox, Architect, Town Hall, Dunstable	do.

CONTRACTS.—*Continued.*

Nature of Work or Materials.	By whom Advertised.	Forms of Tender, etc., supplied by	Tenders to be Delivered
Road Materials	Bromley Town Council	Borough Engineer, Municipal Offices, Bromley	May 30
Private Street Works	Leyton U.D.C.	W. Dawson, Surveyor, Town Hall, Leyton	do.
*Supply of Road Materials	Bromley Town Council	Borough Engineer, Municipal Offices, Bromley, Kent	do.
*Erection of Infants' School, etc., Lordship-lane	Wood Green U.D.C.	C. J. Gunyon, Architect, Town Hall, Wood Green, N.	do.
*New Goods Offices, Cardiff	Great Western Railway Co.	Engineer, Newport Station	do.
*Repairs to Stucco Work, Paddington Station	do.	Engineer, Paddington Station	do.
Sewering, Paving, etc., Fair View-terrace	New Sarum Town Council	City Surveyor, Endless-street, Salisbury	May 31
Pulling Down old Market, Bury	Bury Corporation	Borough Engineer, Bury, Lancashire	do.
Forty-two Dwellg.-houses, Southwick, nr. Sunderland	North-Eastern Railway Co.	W. Bell, Architect, Central Station, Newcastle-on-Tyne	do.
Raising and Haulage of 9,000 tons of Clay	Torquay Corporation	S. C. Chapman, Water Engineer, Town Hall-chambers, Torquay	do.
Street Masonry and Jobbing Work	Hove Corporation	H. H. Scott, Borough Surveyor, Town Hall, Hove	do.
Materials and Stores	do.	do.	do.
Flints	do.	do.	do.
150 ft. of 13 in. by 9 in. Rectangular Welded Steel Pipes	Basingstoke Corporation	T. R. Phipps, Borough Surveyor, Town Hall, Basingstoke	do.
Alterations, etc., Town Hall	Brierley Hill U.D.C.	Surveyor's Office, Town Hall, Brierley Hill, Staffs	do.
Water Supply (Contract No. 3)	Hadham R.D.C.	A. G. Gwynn, Clerk to Hadham R.D.C., Bishop's Stortford	June 1
Painting Cemetery Chapels, Lodge, and Fence	Teddington Burial Board	M. Hamsworth, Surveyor, Elmfield House, Teddington	do.
Alterations, etc., to Elementary School, S. Kelsey	Lindsey C.C. Education Committee	Scorer & Gamble, Architects, Bank-street-chambers, Lincoln	June 2
Painting Elmfield House, Stables, Fire Station, etc.	Teddington U.D.C.	M. Hamsworth, Surveyor, Elmfield House, Teddington	June 3
Alters. to Oddfellows' Hall, St. James's-rd., Halifax	Friendly and Trade Societies	T. Kershaw, Architect, L. & Y. Bank-chambers, Halifax	do.
1,600 Barrels of Refined Tar	Rothesay Town Council	J. S. Hepburn, Town Clerk, Rothesay, N.B.	do.
Stores	Clyde Navigation Trustees	Superintendent of Stores, 16, Robertson-street, Glasgow	do.
Balustrade Wall round the "Oval," Dalton-square	.....	T. Cann Hughes, Town Clerk, Lancaster	do.
Sewering of Beaufort-street, Prestwich	Prestwich U.D.C.	Surveyor's Office, Chester Bank, Prestwich	June 5
Main Drainage, Glasgow (Sewers Nos. 2, 12, and 13)	Glasgow Corporation	City Engineer, City-chambers, 64, Cochrane-street, Glasgow	do
Mixed School at Pengenlan, Miskin	Mountain Ash U.D.C.	W. G. Thomas, Architect, Public Offices, Mountain Ash	do.
One Hundred Cast-Iron Lamp Columns	Hornsey Town Council	E. J. Lovegrove, Municipal Offices, Southwood-lane, Highgate	do.
Road Material and Tar Paving	Loughton U.D.C.	District Surveyor to Council	do.
Broken Granite	Plomegate R.D.C.	T. W. Read, Clerk, Wickham Market Workhouse, Suffolk	do.
*New Council School, Hindhead, Surrey	Surrey Education Committee	Jarvis & Richards, 36, Victoria-street, S.W.	do.
Road Materials	Hipperholme U.D.C.	G. Wharton Thompson, Surveyor, Council Offices, Hipperholme	June 6
Widening Harrow Main Road at Deadman's Hill	Middlesex C.C.	H. T. Wakelam, County Engr., Middlesex Guildhall, Westminster	do.
*Redraining Horsham Workhouse	Horsham Guardians	C. H. Burstow, Architect, 6, West-street, Horsham	do.
*Erection of Council School	Reading Local Education Authority	G. W. Webb, Architect, Reading	do.
*Repairs and Painting at Public Urinals	Islington Borough Council	Borough Engineer, Town Hall, Upper-street, N.	do.
*Repairs and Painting at Public Gardens	do.	do.	do.
Movable Electric Jib Cranes	Bristol Docks Committee	W. W. Squire, Engineer, Cumberland Basin, Bristol	June 7
*Extension, Admin. Block, Muswell Hill Isolation Hosp.	Borough of Hornsey	Boro. Engr. & Sur., Municipal Offices, 99, Southwood-lane, Highgate	do.
*Public Baths in Manor-street, King's-road, Chelsea	Chelsea Borough Council	Town Hall, King's-road, Chelsea, S.W.	do.
*Hot-water Apparatus in Schools	Wolverhampton Education Com.	T. H. Fleeming, Architect, 10, Queen-square, Wolverhampton	do.
*Painting, etc., Workhouse, near Edgware	Hendon U.D.C.	Clerk to the Guardians, Union Offices, Edgware	do.
Stores	Penrikyber Navigation Colliery Co.	Secretary, Penrhiwceiber, R.S.O., Glam	June 8
Painting Council Schools	Bootle Corporation	Borough Engineer's Office, Town Hall, Bootle	do.
*New Public Offices and Town Hall	Acton U.D.C.	W. G. Hunt, Architect, 17A, Vicarage-gate, W.	June 12
*Cottage Homes on Workhouse Premises, Croydon	Croydon Union	J. Hatchard Smith, Arch., 41, Moorgate Station-buildings, E.C.	do.
*Engine and Boiler-house, etc.	Colchester Corporation	C. E. Bland, Town Hall, Colchester	June 13
Water Mains at South Brent	Totnes R.D.C.	R. Hansford Worth, Engineer, 42, George-street, Plymouth	June 14
9,000 sq. yds. Permanent Paving	Watford U.D.C.	H. M. Turner, 14, High-street, Watford	do.
Making-up Roads	do.	do.	do.
*Installation of Engineering Plant, Carshalton	Metropolitan Asylums Board	Office of the Board, Embankment, E.C.	do.
*Engineering Work, Carshalton-on-the-Hill	do.	do.	do.
*Rebuilding of Newport (Mon.) Head Post Office	Commissioners of H.M. Works, etc.	H.M. Office of Works, Storey's-gate, S.W.	do.
Extension of Launcherhead Main to Lochore District	Lochgelly Town Council	Buchanan & Bennett, C.E., 12, Hill-street, Edinburgh	June 22
Church, Morgan-street, Pontypridd	Trustees of the Unitarian Church	A. Lloyd Thomas, Eng. & Arch., Church-st.-chambers, Pontypridd	June 23
Stores	Mersey Railway Co.	G. H. Langham, Sec., Worcester House, Walbrook, London, E.C.	No date.
Eight Dwelling-houses in Carrfield-street, Sheffield	Sheffield Brick Co.	W. G. Buck, Architect, 4, East-parade, Sheffield	do.
Vestries, etc., to Moat Church, East Grinstead	.....	Macintosh & Newman, Birkbeck-bank-chs., High Holborn W.C.	do.
Residence, Holderness-road, Sutton	Mr. J. G. Hall	T. Brownlow Thompson, Architect, 15, Parliament-street, Hull	do.
St. Patrick's Club Rooms, Quarry-hill, Leeds	.....	E. Simpson, Architect, 12, Cunliffe-terrace, Manningham, Bradford	do.
Alterations at the Brander Arms, Lossiemouth	.....	R. B. Pratt, Architect, Elgin	do.
*Residence, Stabling, etc., Worcester Park	.....	Tutt & Goodchild, Architects, 18, Ironmonger-lane, E.C.	do.
Reconstructing Cowlow Bridge	.....	Garlick & Flint, Terrace-road, Buxton	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Application to be in
*Clerk of Works	Borough of Ossett	Not stated	May 22
*Clerk of Works	Bradford Corporation	Not stated	May 25
*Assistant Clerk of Works	Metropolitan Borough of Woolwich	£2 10s. per week	May 29
*Hot-water Engineer	do.	£2 10s. per week	June 2

Those marked with an (*) are advertised in this number. *Competitions*, —. *Contracts*, iv. vi. viii. x. *Public Appointments*, xvi.

TENDERS—*Continued from page* 555.

LONDON.—For construction of tramways in Archway-road, Highgate, for roadwork, paving works, etc., for the London County Council :—

—	Tramway Construction.	Paving Works of Street Widening.	Total.
	£ s. d.	£ s. d.	£ s. d.
Muirhead, Greig, & Matthews	5,074 14 0	1,082 1 7	6,156 15 7
R. W. Blackwell & Co., Ltd.	5,037 15 8	1,104 18 6	6,142 14 2
W. Griffiths & Co., Ltd.	4,954 13 8	1,034 5 10	5,988 19 6
J. Mowlem & Co., Ltd.	4,920 2 4	1,035 8 7	5,955 10 11
D. R. Paterson	4,807 14 2	1,036 11 9	5,844 5 11
Dick, Kerr, & Co, Ltd., London*	4,587 15 9	1,010 8 5	5,598 4 2

LONDON.—For making-up Rostrevor-mews-approach, for the Fulham Borough Council. Mr. F. Wood, Borough Surveyor, Town Hall, Fulham, S.W. :—

R. J. Greenham	£219 0 0	F. Fowles	£189 0 0
A. B. Champnes	198 10 9	Harvey Bros., 25, Victoria-street, S.W.*	174 10 0
G. Wimpey & Co.	191 0 0		

MACCLESFIELD.—For erecting new boundary walls at the Workhouse, for the Guardians. Mr. Jabez Wright, architect, King Edward-street, Macclesfield :—

J. Clayton, Sunderland-street, Macclesfield £339

MERTHYR TYDFIL.—For laying out new playground at Abermorlais Schools, for the Urban District Council :—

D. Jones, Dowlais* £303 9 9

NEWBURY.—For erecting a Carnegie library and reading-room, for the Free Library Committee. Mr. S. J. L. Vincent, Borough Surveyor and Architect. Quantities by the architect :—

T. Plumb	£1,983	Hoskins Bros.‡	£1,920
A. J. Chivers	1,965	A. Brazier	1,818
G. Elms	1,959		

[All of Newbury.]
‡ Recommended for acceptance.
[Architect's estimate, £2,000.]

NORTH SUNDERLAND. — For laying cast-iron mains, fixing valves and fittings, and building pits (North Sunderland water supply), for the Trustees of Lord Crewe's Charity. Messrs. Anson & Shenton, engineers, 28, Victoria-street, Westminster, S.W. :—

Hardy & Atkinson	£1,570 0 0	Braithwaite & Co.	£875 0 0
E. & A. Storey	1,445 12 1	R. Carse & Son	870 0 0
W. Foster	1,417 7 6	Brebner & Co.	850 0 0
J. Davidson	1,330 0 0	W. Carr	783 8 7
E. Mackay & Son	1,265 0 0	J. & G. Green	765 0 0
G. J. Short	1,158 11 9	R. Hudson & Sons	740 0 0
W. Lant	1,153 1 0	Elliott Bros., Preston, Chathill*	696 0 0
Henderson & Armstrong	1,130 0 0		
J. Carrick	957 0 0		
McLaren & Co.	897 0 0		

PWLLHELI (Wales).—For altering Dina's C.M. Chapel, Llanlestyn, erecting new schoolroom, house, and shop, etc. Mr. R. L. Jones, County Architect, Carnarvon :—

J. T. Jones	£1,720 0	G. Jones, Penrhos Morfa Nevin, Pwllheli*	£1,170 0
J. Griffith	1,630 0	W. Pritchard & M. & M. Roberts‡	1,140 0
Jones, Roberts, & Jones	1,616 18		

‡ Incomplete.

RADCLIFFE (Lancs.).—For additions and alterations to St. Thomas's Schools, for the Trustees and Managers Messrs. J. Sellers, Son, & Orrell, architects and surveyors, Union-chambers, Bury. Quantities by the architects:—

Brickwork: T. Lawrenson & Son, Radcliffe, Lancs.	£548	0	0
Stonemasons: T. Butterworth & Son, Radcliffe, Lancs.	91	10	0
Carpenters and Joiners: Collier & Smith, Radcliffe, Lancs.	480	19	0
Slater: J. W. Aston, Whitefield, Lancs. ..	95	0	0
Painters: J. Lomax & Co., Radcliffe, Lancs.	55	1	10
Plumber: A. T. Walker, Radcliffe, Lancs...	133	5	0
Ironfounders: J. Wolstenholme & Son, Radcliffe, Lancs.	40	19	5
Heating: Saunders & Taylor, Ltd., Manchester	188	0	0

SCUNTHORPE.—For the erection and construction of new buildings and other works of levelling, paving, the supply and erection of new cattle pens and fitments for the new market buildings and premises, for the Urban District Council. Mr. A. M. Cobban, Engineer, Home-street, Scunthorpe:—

H. Ashby....	£2,345	0	0	C. Hollingsworth	£2,135	13	7
H. J. Thompson	2,145	0	0	W. Pallister, Scunthorpe*	2,134	0	0

SEAHOUSES.—For constructing a reservoir to hold 61,000 gallons, near Seahouses (North Sunderland water supply), for the Trustees of Lord Crewe's Charity. Messrs. Anson & Shenton, engineers, 28, Victoria-street, Westminster, S.W.:—

McLaren & Co.	£900	0	0	R. Carse & Son	£328	7	6
Brebner & Co.	575	0	0	Braithwaite & Co.	328	0	0
W. Lant.....	487	11	6	R. Hudson & Sons	310	0	0
Henderson & Armstrong ..	410	0	0	W. Carr	303	1	6
W. Foster	394	6	5	J. & G. Green	298	0	0
J. Carrick	385	0	0	Elliott Bros., Preston,			
C. & A. Storey	381	16	1	Chathill* ..	286	0	0
J. T. Short....	380	9	4	Hardy & Atkinson	285	0	0
J Davidson ..	370	0	0				
E. Mackay & Son	360	0	0				

SHEFFIELD.—For the construction of parts of Wincobank-avenue and Foxglove-road. Mr. C. F. Wike, M.Inst.C.E., City Engineer, Sheffield:—

J. Hadfield & Sons, Sheffield* .. £1,038 3 6

SHERINGHAM (Norfolk).—For new elementary schools, for the Norfolk Education Committee. Messrs. Olley & Haward, architects, Great Yarmouth:—

C. T. Baker, Ltd.	£7,874	0		C. A Sadler ..	£6,247	0	
Girling & Smith	6,753	0		J. W. Neale ..	6,200	0	
G. Riches	6,734	0		H. Bullen	6,149	0	
R. Chapman ..	6,590	0		A. E. Chapman	6,145	0	
Carter & Wright	6,549	0		T. Gill	6,080	0	
W. Porter	6,400	0		Oak Building Co.	6,008	0	
J. Youngs & Son	6,348	0		W. J. Hannant.	5,997	0	
G. A. Lines....	6,323	11		T. H. Blyth ..	5,965	0	
G. E. Hawes ..	6,290	0		Blyth & Sons, Sheringham*.	5,956	10	
Spencer, Santo, & Co.	6,260	0					
H. C. Greengrass	6,250	0					

[Architects' estimate, £6,400.]

SOYLAND.—For 400 yds. of kerbing and 550 yds. of flags, Rochdale-road, Ripponden Wood, for the Urban District Council. Mr. J. Wadsworth, Surveyor, Ripponden:—

		s.	d.	
Cranshaw Bros., Woodville, Ripponden*	Kerb laying	0	6	per yd. lineal.
	Flags sq. ..	4	4	per super. yd.
G. Cheetham	,, ,, ..	5	1	,, ,,
	Kerb laying	0	9	per yd. lineal.
W. Appleyard	,, ,,	1	0	,, ,,
	Flags sq. ..	4	11	per super yd.
Riley, Sons, & Hartley	,, ,, ..	5	1	,, ,,
	Kerb laying	0	7½	per yd. lineal.
Yorkshire Building & Monumental Stone Co., Ltd..	Flags & kerb	6	10	,, ,,
S. Marshall & Sons	,, ,,	6	4	,, ,,

Whole Tender.

W. Crowther	£151	19	7
S. Smith	138	15	0
J. & R. A. Cranshaw.....	137	0	0

SUTTON Surrey).—For repairs to roads at the Downs School, Banstead-road, for the Metropolitan Asylums Board. Mr. W. T. Hatch, Engineer-in-Chief:—

S. Kavanagh & Co.....	£746	0	0	J. C. Trueman..	£575	0	0
A. C. Soan	690	0	0	Enness Bros. ..	538	0	0
E. Iles. Jun. ..	646	0	0	Treeby & Co., Hillside-road, High-street, Chatham*....	426	8	6
Grounds & Newton.....	628	0	0				

TAYLORTON.—For erecting a smallpox hospital at Lower Taylorton, near Stirling, for the Stirling Combination Hospital Committee. Mr. A. H. Goudie, Burgh Surveyor, Stirling. Quantities by Burgh Surveyor:—

Builders: R. Anderson & Sons, Stirling	£314	10	7
Joiner: J. McAllister, Stirling	228	14	8
Plumbers: J. & J. Duff, Stirling	119	17	6
Slaters: Milne & Co., Stirling	60	14	6
Plasterer: R. Foster, Stirling	70	16	6

TOTTENHAM.—For renovations, decorations, and repairs, to fourteen houses, Vernon-road, Tottenham, Middlesex. Mr. C. L. Morgan, architect, 43, Cannon-street, London, E.C.:—

West Bros. & Pettitt, Walthamstow*.... £526

WALMER. — For sewerage works in Mongeham Bottom-road, Cross-road, and Waterworks-road, for the Urban District Council. Mr. H. W. Barker, Surveyor, Walmer. Quantities by Surveyor:—

W. H. Coombe	£725	12	0	C. Castle & Co.	£542	15	8
J. E. Turner ..	590	7	0	G. Browning ..	532	0	0
A. E. Goodbourn	565	0	0	J. G. Porter, Belvedere, Kent*	457	0	0
A. G. Osentar	563	12	6				

WELWYN (Herts).—For 58 tons of 9-in. cast-iron pipes, for the Rural District Council. Messrs. H. Walker & Sons, engineers, Albion-chambers, King-street, Nottingham:—

Holwell Iron Co., Ltd., Ashfordby, near Melton Mowbray, Leicester £284 6 1

WITHAM (Essex).—For external and internal painting at Bridge School, for the Metropolitan Asylums Board. Mr. W. T. Hatch, Engineer-in-Chief:—

J. F. Penn	£390	0		T. Cole, 125, Offord-road, Barnsbury, N.*	£153	0	
C. Cotching	251	5					
E. Proctor & Son..	235	0					
E. G. Rogers	230	0		Brotman & Bernstein	150	0	
Lilley & Sons	227	0					

WOOLWICH.—For erecting a large heater room at the Brook Fever Hospital, Shooter's Hill, for the Metropolitan Asylums Board. Mr. W. T. Hatch, Engineer-in-Chief:—

E. Proctor & Son	£2,380	0		Friday & Ling .	£1,650	0	
Enness Bros. ..	1,957	0		T. Cole, 125-7, Offord-road, Barnsbury, N.*	1,644	18	
Thomas & Edge	1,950	0					
E. Wall	1,703	0					

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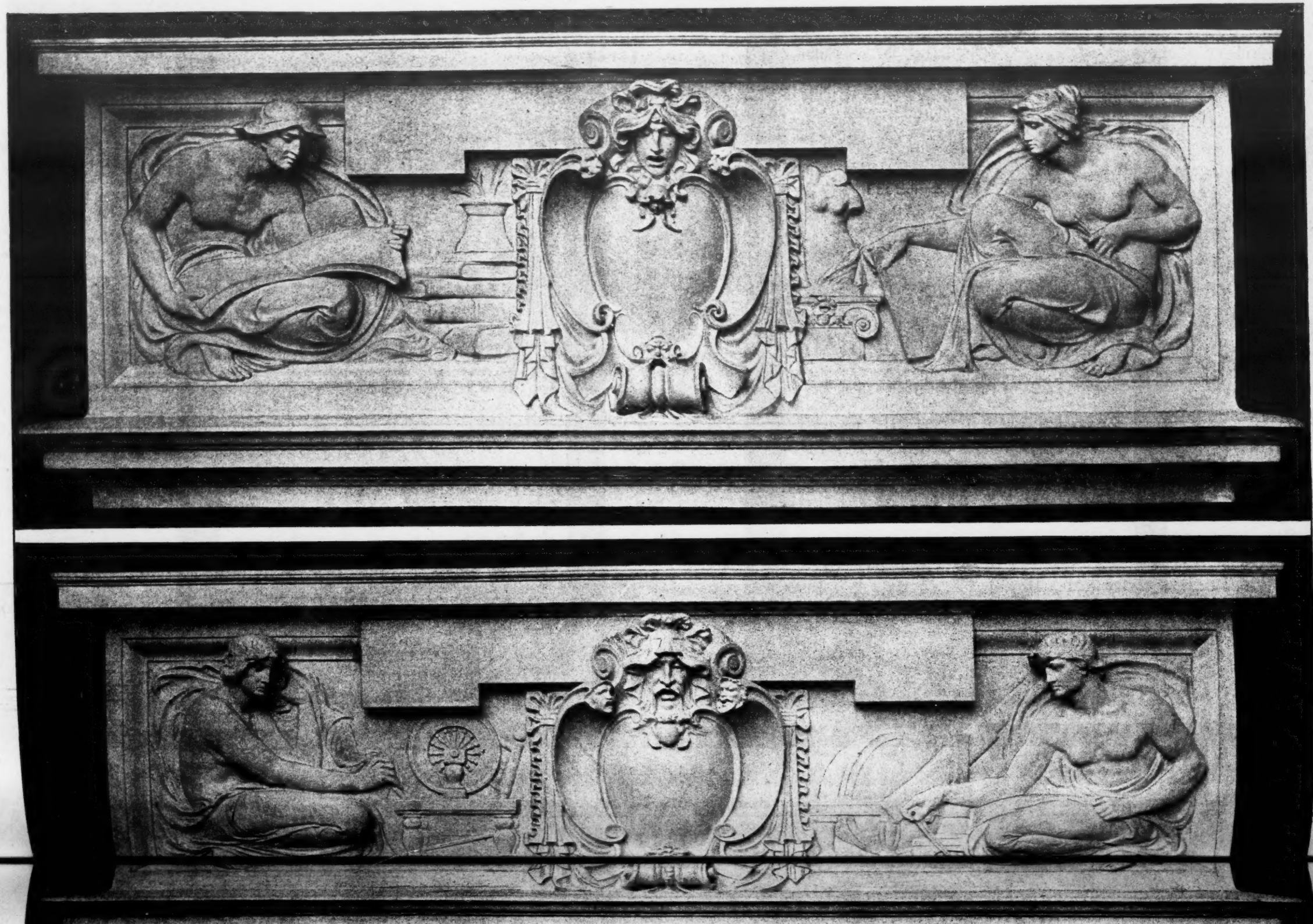

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LAMBETH MUNICIPAL BUILDINGS COMPETITION: FIRST PREMIATED DESIGN.

Mr. S. Warwick A.R.I.B.A., and Mr. H. A. Hall, A.R.I.B.A., Joint Architects.

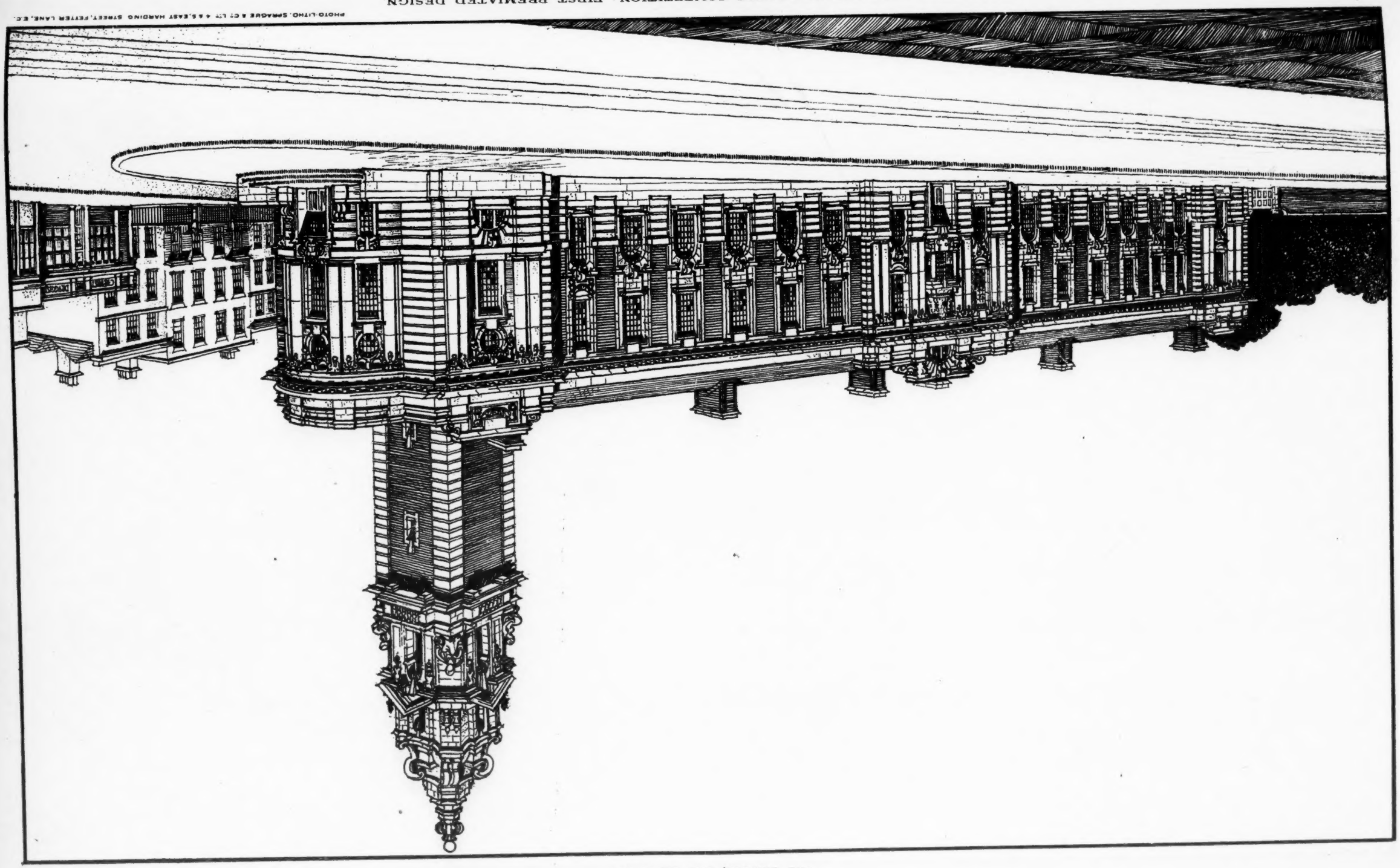
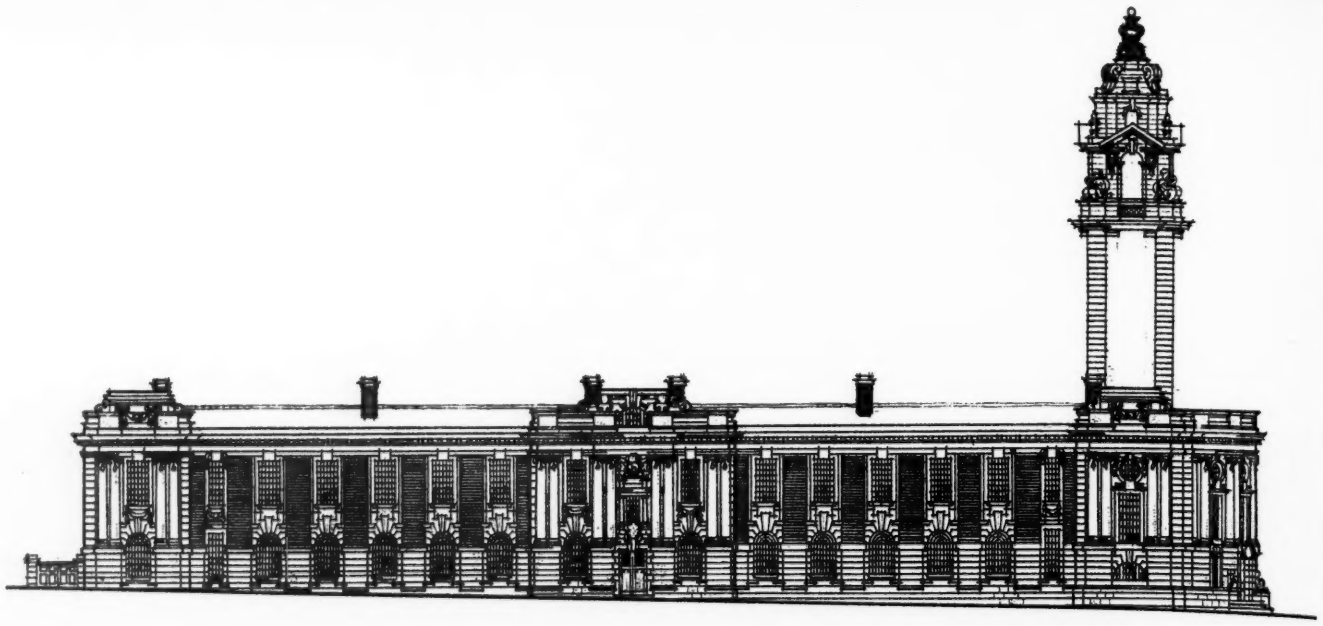


PHOTO-LITHO. SWAGGE & CO. LTD 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

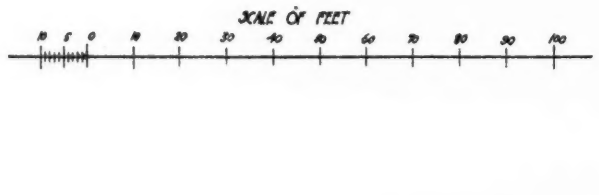
PHOTO-LITHO. SPRAGUE & Co LTD 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

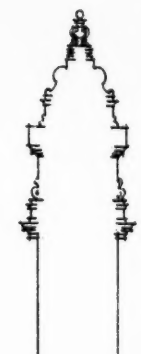
LAMBETH MUNICIPAL BUILDINGS COMPETITION: FIRST PREMIATED DESIGN.

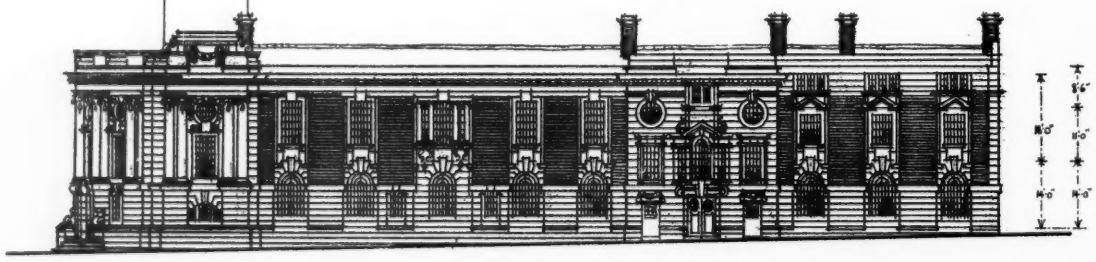
MR. S. WARWICK A.R.I.B.A., AND MR. H. A. HALL, A.R.I.B.A., JOINT ARCHITECTS.



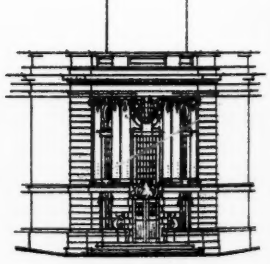
ELEVATION TO BRIXTON HILL



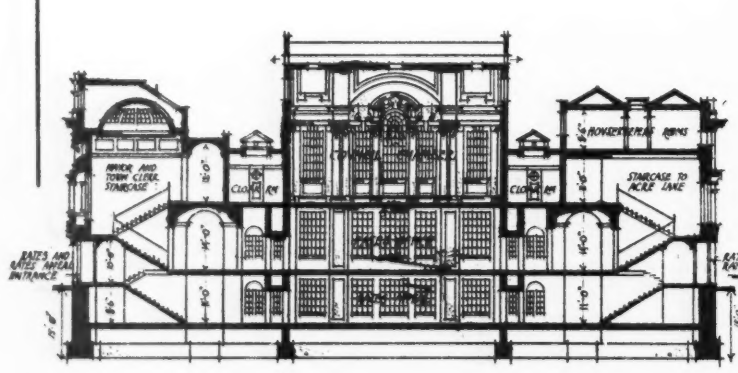




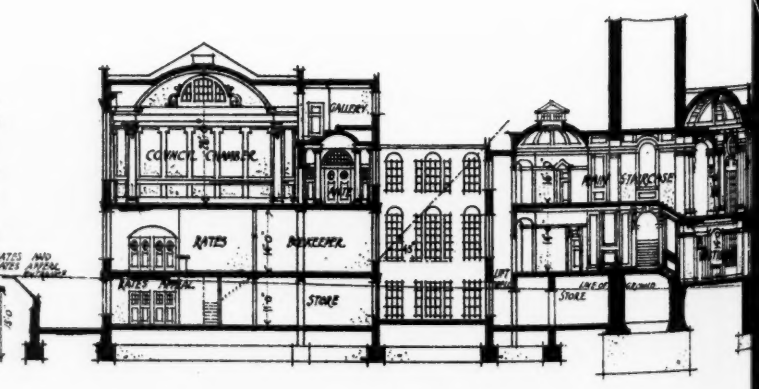
ELEVATION TO ACRE LANE



ENTRANCE

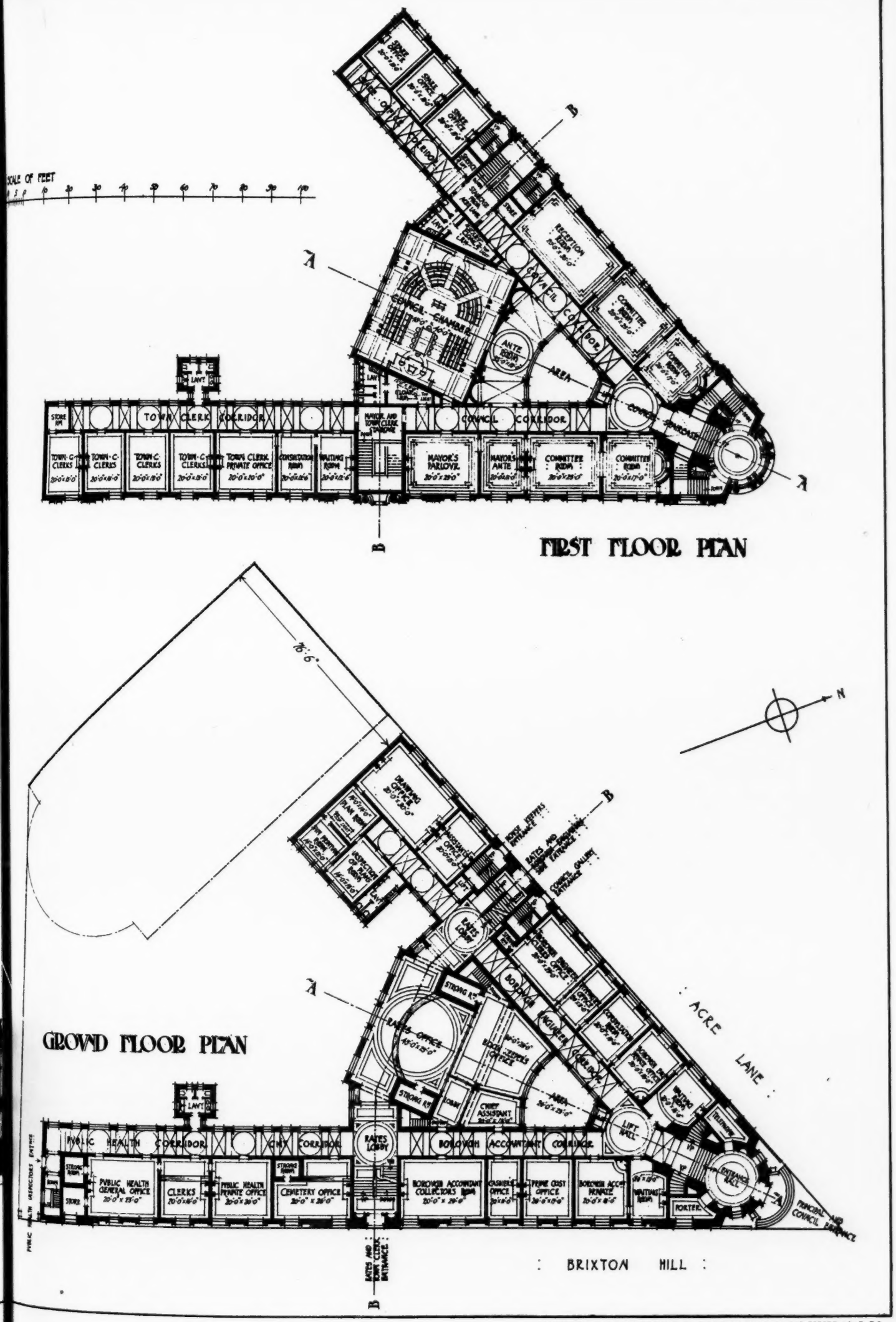


SECTION B·B



SECTION A·A

LAMBETH MUNICIPAL BUILDINGS
Mr. S. Warwick A.R.I.B.A., and M
ELEVATIONS,



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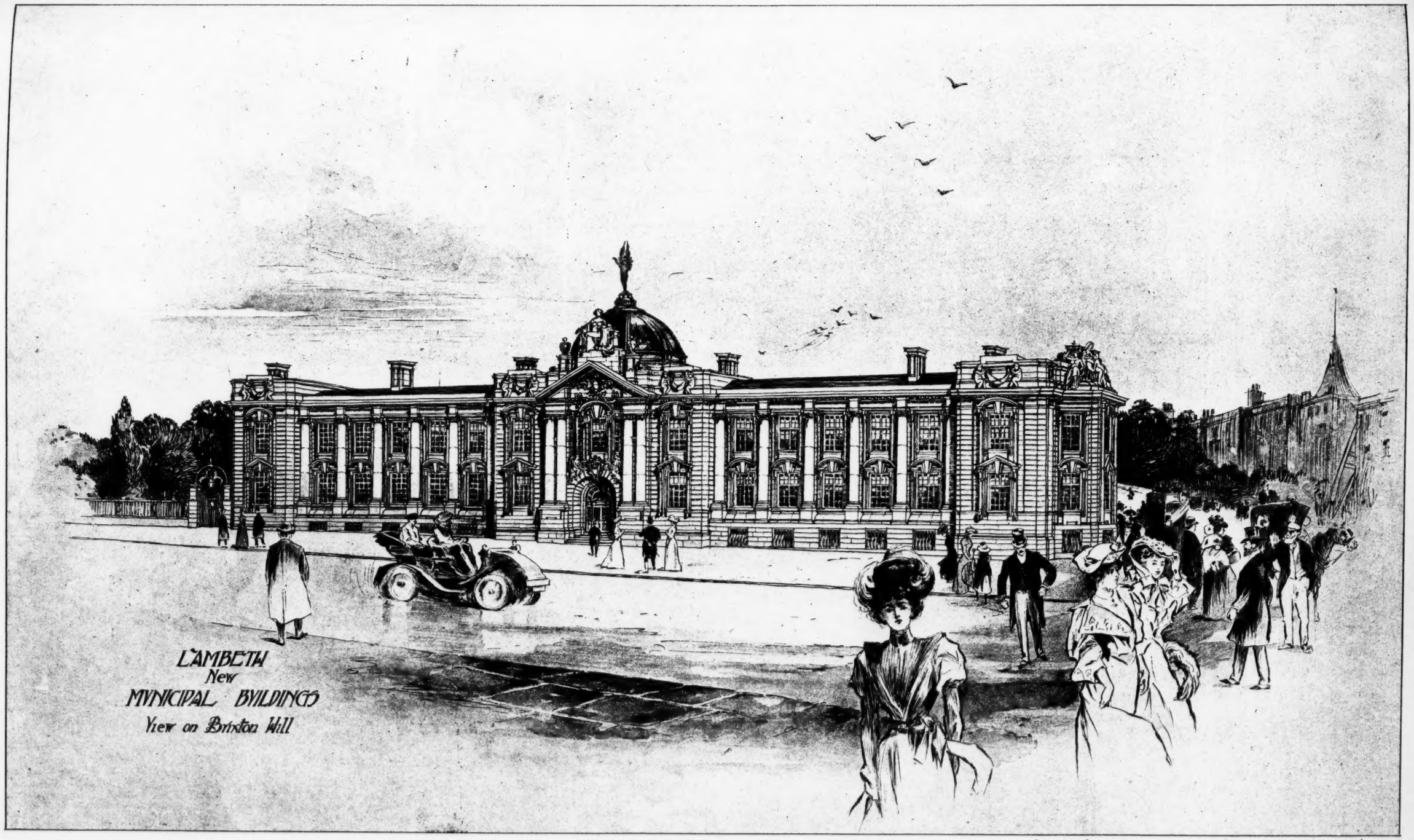
BUILDINGS [illegible]TION: FIRST PREMIATED DESIGN.
[illegible].B.A., AND M[illegible]ALL, A.R.I.B.A., JOINT ARCHITECTS.
ELEVATIONS, [illegible] AND PLANS.



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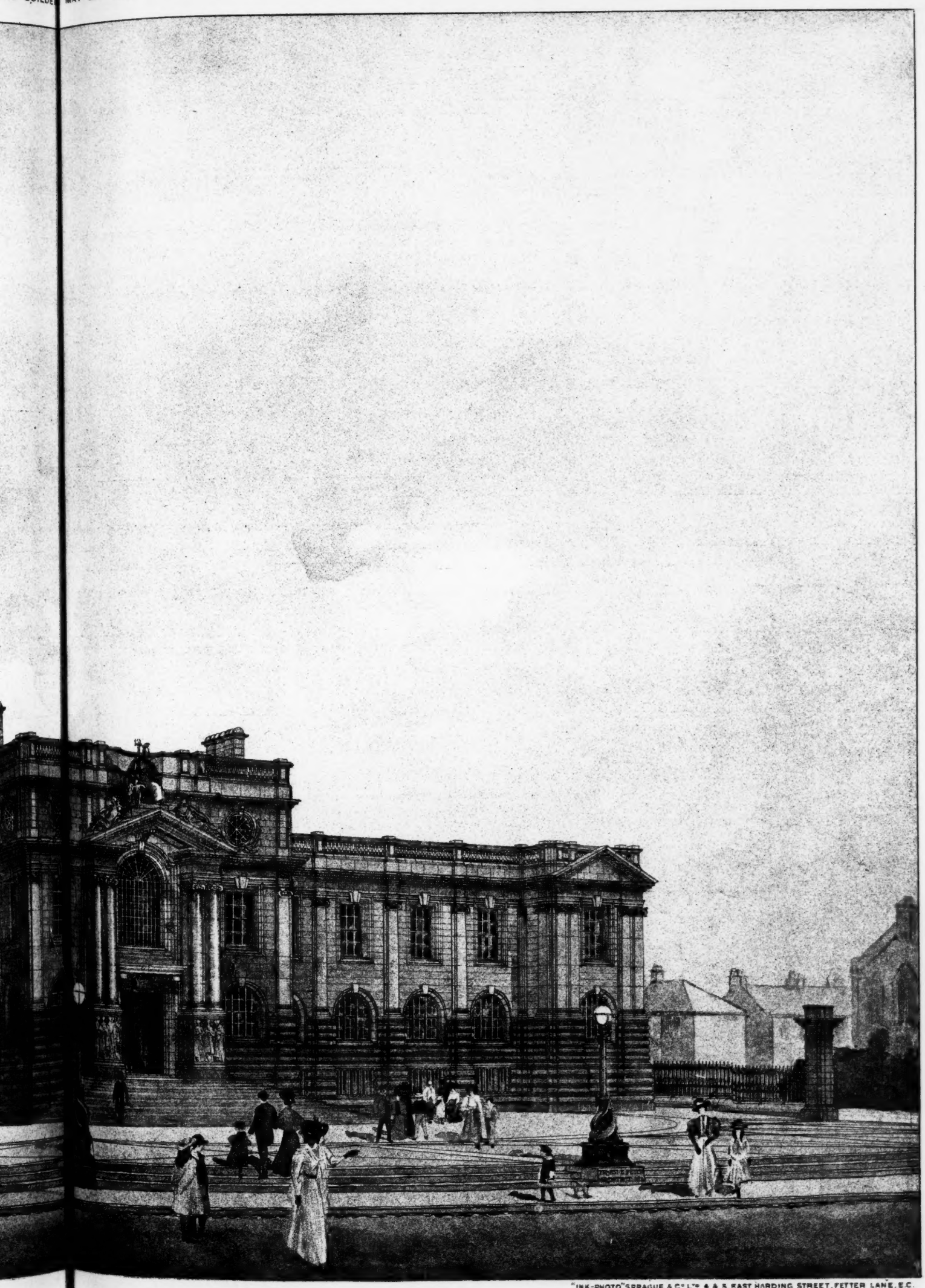
LAMBETH MUNICIPAL BUILDINGS COMPETITION: SECOND PREMIATED DESIGN.

By Mr. H. P. Burke Downing, F.R.I.B.A., Architect.

PERSPECTIVE VIEW.

MUNICIPAL BUILDINGS, SOUTH SHIEL —Mr. Ernest



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OUTH SHIELDS.—Mr. Ernest E. Fetch, A.R.I.B.A., Architect.